Truth-telling and (dis)honesty norms in the finance industry

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Abstract

As unethical behavior is a recurring issue in the finance industry, we investigate in two controlled experiments with financial professionals (i) social norms for (dis)honesty and (ii) preferences for truthfulness within the finance industry. Participants have to report a number where truth-telling is associated with economic costs, or have to assess the social appropriateness of possible actions. We vary the situational context of subjects' decisions by framing the task in an abstract, neutral, or financial context. While we find no differences between contexts, for students, financial professionals act more honestly in a financial context. Our results suggest that situational social norms drive (dis)honest behavior.

Fraud and unethical behavior are recurring and prominent issues in the finance industry, which are costly for both consumers and the affected firms. While empirical research reveals that, for example, more than 7% of financial advisors in the US have a misconduct record (Egan et al., 2019), experimental methods allow researchers to measure honesty and lying in a controlled environment (e.g. Fischbacher and Föllmi-Heusi, 2013; Gneezy et al., 2018).[1] Regarding dishonesty in the finance industry, in particular, recent experimental research reports higher lying frequencies among bank employees when their professional identity is rendered salient and conclude that "*the prevailing business culture in the banking industry weakens and undermines the honesty norm*" (Cohn et al., 2014, p. 1). However, this interpretation has been challenged, as alternative explanations (e.g. involving societal expectations) cannot be ruled out (Stöckl, 2015; Vranka and Houdek, 2015; Hupé, 2018).

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[1] See Irlenbusch and Villeval (2015) and Jacobsen et al. (2018) for comprehensive overviews of research on dishonest behavior; Abeler et al. (2019) provide an extensive meta-analysis of cheating experiments using the Fischbacher-Föllmi-Heusi paradigm (Fischbacher and Föllmi-Heusi, 2013).

While Cohn et al. (2014) prime subjects on their (financial) professional identity, a number of studies have shown that framing an experimental task in a financial way also discourages cooperation in a Prisoner's dilemma (Liberman et al., 2004; Ellingsen et al., 2012, 2013) as the framing enters subjects' beliefs and thereby acts as coordination device (Ellingsen et al., 2012). In dictator games, the evidence of contextual instructions' effects on behavior is mixed: Dreber et al. (2013) report no (social or anti-social) framing effects, while Chang et al. (2019) show that framing the experiment in a particular context can evoke certain social norms which in turn affect people's choices.[2]

In the present study, we examine dishonest behavior in different contexts and thereby disentangle and directly test for descriptive and injunctive social norms for dishonesty in the finance industry.[3] We thus hope to answer whether there is a belief in dishonesty related to the finance industry and/or whether dishonest behavior is seen as socially appropriate in finance. In particular, we test whether different situations evoke different social norms and behavior with regard to honesty; and whether financial professionals are more prone to lying in a financial decision situation. Extending previous research on *aggregate* lying behavior among bankers with indirect measures of social norms, we directly examine preferences for truthfulness and dishonesty norms at the *individual* level.

Thus, in two experiments with a sample of financial professionals and students, we investigate (i) injunctive and descriptive social norms for (dis)honesty and (ii) preferences for truthfulness. We apply a between-subjects design in which the three treatments are distinguished by how the particularly decision situation is framed. Hence, we vary the context of subjects' decisions by framing the task in an abstract, a neutral but meaningful, or in a financial context while keeping the sets of payoffs identical. With this design, we are able to identify preferences for truthfulness and the related social norms in finance in comparison to alternative decision situations.

Experimental design

In Experiment I we elicit subjects' preferences for truthfulness in a truth-telling task based on Gibson et al. (2013), in which participants are asked to report a specific number associated with economic costs for truth-telling. They face a choice list of five decision situations, in each of which they have to make a binary choice on whether to tell the truth (report the true number) or tell a lie (report the false number). Each decision entails a trade-off between telling the truth and a monetary compensation – i.e., truth-telling has an economic cost, which is different for each of the five decision-situations: subjects always receive 10 euros

[2] Alekseev et al. (2017) provide a comprehensive overview and discussion about the potential effects of contextual instructions in various experimental settings.

[3] Descriptive norms represent actions which are regularly taken by people, whereas injunctive norms describe actions which people 'should do' or are 'ought to do' (Krupka and Weber, 2013).

for reporting the wrong number (which is 35), while the payment for reporting the correct number (which is 31) is 2, 4, 6, 8, and 10 euros, respectively, in the five decisions.[4] The economic cost of telling the truth are thus 8, 6, 4, 2, and zero euros, respectively, in the five decision situations. Note that we purposely apply non-strategic decision situations in which an individual's payoff is independent of others' choices.[5]

In a between-subjects design with three treatments we vary the *framing*, as we state the decision situations in one of three specific contexts by applying differently framed experimental instructions. The three treatments reflect the three types of contextual instructions as put forward in Alekseev et al. (2017): *abstract* (T_ABS), *meaningful* (T_NEU), and *evocative* (T_FIN).

As a benchmark, we first abstract the task from any context in T_ABS: subjects are asked to imagine two states of nature of which only one is the current state which they subsequently are asked to report. The wording in T_ABS is:

> ABSTRACT: *Imagine there are two possible states of nature and one of your tasks is to report the current state.*

Second, in T_NEU, we add meaning to the task but in a comparatively neutral setting in the sense that the terms in use should not evoke strong emotions or connotations: decision-makers are asked to imagine themselves in the position of a security clerk at a museum whose task is to report the number of visitors. The wording in T_NEU is:

> NEUTRAL: *Imagine you are a security clerk at a museum and one of your tasks is to inform the manager each week about the average number of visitors in the preceding week.*

Third, in T_FIN, we apply contextual instructions specifically placing participants in a financial decision situation: As the CEO of a publicly listed company, a subject's task is to announce the earnings per share (i.e., reporting either a true or false number on the current earnings of the company).[6] The wording in T_FIN is:

> FINANCIAL: *Imagine you are the Chief Executive Officer (CEO) of a publicly listed company and one of your tasks is to inform shareholders each quarter about the course of business and the earnings per share.*

In each of the three treatments subjects can report either the number 31 (the true number) or 35 (the wrong number resulting in a higher payoff; see the full instructions in the Appendix for the exact wording).

In Experiment II, we elicit the underlying (injunctive) social norms towards dishonesty for each of the ten decisions in the three treatments outlined in Experiment I above. This is

[4] For our student subjects all payoffs are divided by 2.

[5] Thus, we follow Gibson et al. (2013) in eliminating any role for either social preferences such as, for example, altruism, reciprocity, and guilt aversion (Charness and Dufwenberg, 2006), or strategic concerns.

[6] The contextual instructions in T_FIN follow the instructions used in Gibson et al. (2013) but are slightly shortened and adapted to keep the compositional structure identical across treatments.

done with a different set of subjects. We thereby adapt the social norm-elicitation procedures (Krupka and Weber, 2013) to our truth-telling task: we describe one of the decision situations, a specific action, and its consequences regarding a participant's compensation, and then ask subjects to assess the social appropriateness of this specific action on a 6-point scale from 'very socially appropriate' to 'very socially inappropriate' (Kimbrough and Vostroknutov, 2016; Krupka et al., 2017).

In a coordination game set-up, subjects in the norm eliciation task are incentivized to choose for each action the social appropriateness rating most likely to be assigned to this action by other participants: they receive 4 euros for participation and 6 additional euros if their social appropriateness assessment matches the mode from all participants' assessments in one randomly determined decision.

The experiment was conducted with 246 students and a unique set of 160 high-skilled financial professionals (see the notes on the experimental implementation in the Appendix). With random assignment, 108 and 115 subjects, respectively, participated in the truth-telling task (Experiment I); the remainder participated in the norm elicitation task (Experiment II). After completing the main tasks, we elicited subjects' beliefs about others and all participants completed a number of survey questions (see the Appendix for a more detailed description of the experimental design and procedures).

Results

Overall, between 62.0% and 65.3% of students' reports are dishonest and thereby very similar across treatments (Kruskal-Wallis rank sum test: $p = 0.999$, $N = 108$). For financial professionals, however, 62.4% of reports in T_ABS, 47.9% of reports in T_NEU, and only 34.7% of reports in T_FIN are dishonest, revealing considerable and statistically significant treatment differences as dishonesty is lower in T_NEU than in T_ABS (Wilcoxon rank sum test: $p = 0.028$, $N = 77$), and lower in T_FIN than in both T_ABS ($p = 0.001$, $N = 72$) and T_NEU ($p = 0.073$, $N = 81$).

Fig. 1 shows the percentage of dishonest reports as a function of the economic costs of honesty across all three contexts for financial professionals (PROF, left panel) and students (STUD, right panel). One can easily see that in PROF there is a clear ordering of treatments, as the percentage of dishonest reports is highest in T_ABS and lowest in T_FIN with T_NEU in-between regardless of the economic costs of honesty. By contrast, there are no systematic differences between contexts in STUD. Overall, the percentage of dishonest reports increases with the economic costs of honesty across all treatments and subjects groups. Regression analyses controlling for subjects' demographics, their risk attitudes, and social preferences

corroborate these results; see Table 1.[7] The average estimated effect of one economic cost instance (i.e., 1 euro for students, 2 euros for professionals) is a 17.6 percentage points increase in the probability of reporting dishonestly in all specifications ($p < 0.010$, CI: ± 0.018).

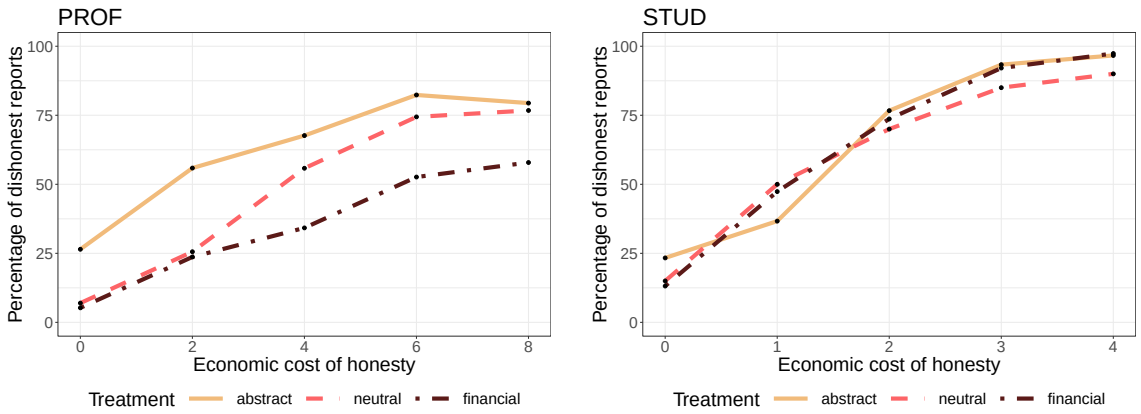

Figure 1: **Percentage of dishonest reports as a function of the economic costs of honesty (Experiment I).** This Fig. depicts the percentage of dishonest reports as a function of the economic costs of honesty for financial professionals (PROF, upper) and student subjects (STUD, lower) and across different contexts: T_ABS (solid, yellow lines), T_NEU (dark red, dot-dashed lines), and T_FIN (light red, dashed lines).

We now turn to social norms for dishonesty from Experiment II. Fig. 2 shows the average social appropriateness ratings pooled over decisions for all three contexts for three distinct subject groups: students assessing the social appropriateness of other students' actions (STUD), students assessing the social appropriateness of financial professionals' actions ($\text{STUD}^{\text{PROF}}$), and financial professionals assessing the social appropriateness of other financial professionals' actions (PROF) on a scale from –1 to +1.[8] First, with social appropriateness levels of -0.03 (T_ABS), -0.15 (T_NEU), and -0.17 (T_FIN), we observe that students in STUD find it not or only slightly socially inappropriate to report dishonest numbers across all contexts. For financial professionals in PROF, however, dishonest reports are seen as significantly less appropriate with levels of -0.59 (T_ABS, Wilcoxon rank sum test STUD vs. PROF: $p = 0.000$, $N = 36$), -0.42 (T_NEU, $p = 0.043$, $N = 33$), and -0.87 (T_FIN, $p = 0.000$, $N = 44$), respectively. In addition, social appropriateness levels for dishonest reports among professionals are significantly lower in the financial context (T_FIN) than in either T_ABS (Wilcoxon rank sum

[7] Tables A1 and A2 in the Appendix show similar regression estimates with and without subjects' individual characteristics as control variables as well as with subject-level estimations, respectively.

[8] In contrast to the percentage of dishonest reports, social appropriateness levels vary only very little with respect to the economic costs of honesty in each decision-situation (Pearson's $\rho = 0.041$, $p = 0.217$ and $\rho = -0.0124$, $p = 0.707$ for honest and dishonest reports, respectively). Thus, we primarily present averages across economic costs per subject group and context.

Table 1: **Linear estimation on the probability of a dishonest report.** This table shows the estimated coefficients from linear probability models using ordinary least squares regressions. $I_{\text{T\_FIN}}$ is a dummy variable taking the value 1 for treatment T_FIN and 0 otherwise; $I_{\text{T\_NEU}}$ is constructed analogously. PROF is a dummy variable taking the value 1 for financial professionals subjects and 0 otherwise. Clustered standard errors at the subject-level are in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$ (double-sided tests).

	Dependent variable: Prob(Dishonest report)		
	(1)	(2)	(3)
Economic cost of honesty	0.176***	0.176***	0.176***
	(0.009)	(0.009)	(0.009)
$I_{\text{T\_FIN}}$	−0.140***	−0.145***	−0.006
	(0.052)	(0.050)	(0.056)
$I_{\text{T\_NEU}}$	−0.091*	−0.093*	−0.033
	(0.050)	(0.050)	(0.063)
PROF		−0.163***	−0.030
		(0.039)	(0.073)
PROF × $I_{\text{T\_FIN}}$			−0.270***
			(0.096)
PROF × $I_{\text{T\_NEU}}$			−0.111
			(0.098)
Constant	0.285***	0.372***	0.301***
	(0.043)	(0.048)	(0.049)
Observations	1,115	1,115	1,115
Adjusted R^2	0.262	0.289	0.299

test: $p = 0.021$, $N = 29$) or T_NEU ($p = 0.000$, $N = 29$) ones.[9]

Taken together, these results suggest that the variations in dishonest reports between subject groups and, crucially, between contexts, we observe in Experiment I are to a large extent driven by differences in injunctive social norms. To directly test this proposition, we can estimate the probability of a dishonest report as a logit model $Pr(T_{ij} = 0|\mathbf{X}) = \Lambda(\beta_0 + \beta_1 \text{ ECONCOST}_j + \beta_2 N(T_{ij}))$, where $\Lambda(\cdot)$ is the logistic cumulative distribution function and $N(T_{ij})$ represents the social appropriateness of action $T_{ij} \in [-1, 1]$ (Krupka and Weber, 2013) (i.e., $T_{ij} = 0$ indicates a dishonest report), using a maximum likelihood estimation (also see Gibson et al., 2013). However, logit regressions yield complete separation, as a social appropriateness rating $N(T_{ij}) \leq 0.182$ perfectly predicts an honest report $T = 0$. Hence, the *injunctive* social norms elicited by a separate group of subjects perfectly predict dishonest

[9]For social appropriateness assessments of honest reports we find similar results but with smaller differences between subject groups. While financial professionals regard honest reports as most socially appropriate in T_ABS (Wilcoxon rank sum test STUD vs. PROF: $p = 0.099$, $N = 38$) and T_FIN ($p = 0.028$, $N = 33$), in T_NEU social appropriateness ratings are very similar across subject groups (Kruskal-Wallis rank sum test: $p = 0.515$, $N = 68$).

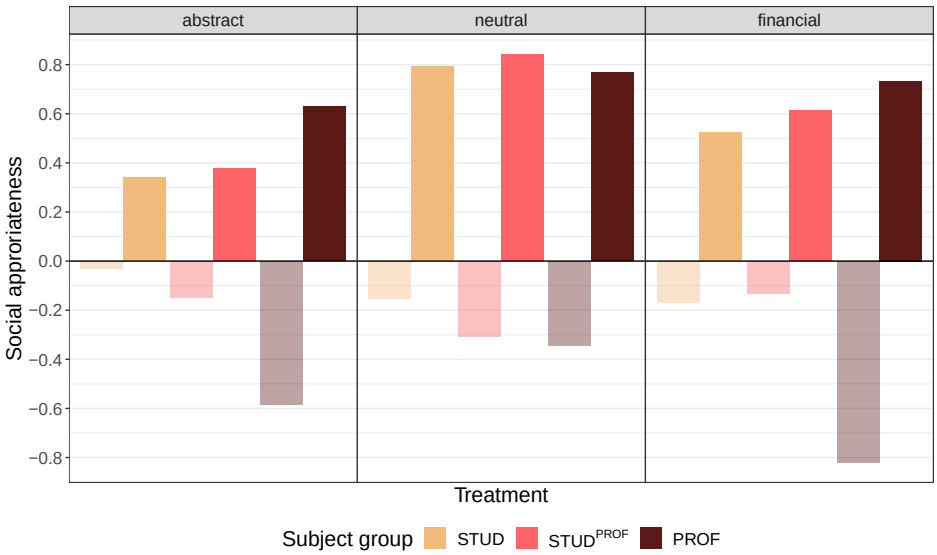

Figure 2: **Social appropriateness across subject groups and treatments (Experiment II).** This Fig. shows the mean level of social appropriateness (on a scale from -1 = very socially inappropriate to +1 = very socially appropriate) for all subject groups and for each treatment. The dark bars in the positive domain (above zero) represent the social appropriateness level for giving an honest report; the light bars in the negative domain (below zero) represent the social appropriateness level for giving a dishonest report.

behavior for both students and financial professionals.

In a further step, we want to analyze whether and to which degree decisions observed in the three treatments on truth-telling can be explained by *descriptive* norms – that is, the beliefs others hold about either students' or financial professionals' decisions. Therefore, we elicited beliefs from subjects participating in the norm elicitation task (Experiment II). These data points are independent from the truth-telling task and subjects only assess others' decisions from Experiment I. We observe that this separate group of financial professionals' expectations can predict other financial professional's truth-telling decisions very well as an ordinary least squares regression with averages per context and economic cost of honesty yields an adjusted $R^2 = 0.869$ with a coefficient of 1.537 ($p < 0.010$, CI: ± 0.312, see Table A4 in the Appendix) for the expected percentage. The steep slope, however, reveals that professionals expect too few dishonest reports: for example, as depicted in Fig. 3, financial professionals expect their peers to be dishonest in 57.3% of reports at most, while our results from Experiment I reveal that, actually, in six out of 15 cases (three contexts $\times$ five different economic costs of honesty) the percentage of dishonest reports is above 57.3%.

In addition, we elicited students' beliefs about financial professionals' behavior in order to test whether societal expectations about agents in the finance industry can explain our results (e.g. Vranka and Houdek, 2015) – that is, we test whether professionals' truth-telling decisions can be explained by expectations from a separate group outside the industry. However, we observe

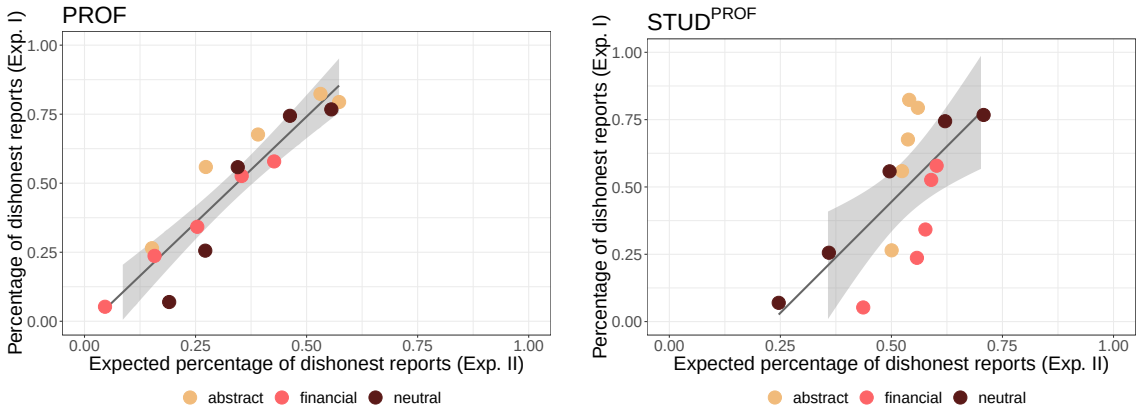

Figure 3: **Percentage of dishonest reports as a function of expectations by a separate groups of subjects.** This Fig. represents the relationship between the expected percentage of dishonest reports from Experiment II and the actual percentage of dishonest reports we observe in Experiment I. On the upper panel we present the results from financial professionals who assess other financial professionals' decisions (PROF), the lower panel presents results from student subjects – i.e., a group of subjects not involved in the finance industry – who assess financial professionals' decisions (STUD$^{\text{PROF}}$).

that an ordinary least square's fit is considerably worse when regressing students' expectations about professionals' decisions on professionals' actual reports (adjusted $R^2 = 0.450$, Table A4).[10] From Fig. 3 one can also see that the fit in STUD$^{\text{PROF}}$ is comparatively good in T_NEU, but there seems to be hardly any relationship between expected reports and actual reports in the other two treatments. Hence, we find that descriptive norms – i.e., collective expectations about people's behavior – can explain our observed patterns: economic costs of honesty affect financial professional's propensity to report dishonestly, and professionals are most honest in the financial context and least honest in the abstract context. In contrast, we find no evidence that societal expectations or stereotypes about the finance industry are able to predict truth-telling among subjects from the finance industry.

Regarding expectations elicited from participants being involved in the truth-telling task of Experiment I themselves, we find these beliefs to be highly correlated with subjects' own decisions (Spearman's rank correlation $\rho = 0.657$, $p < 0.000$). Hence, we also observe the same patterns as in the truth-telling task (see Fig. 3): financial professionals expect their peers to report most dishonestly in the abstract context and most honestly in the financial context, while we observe no treatment differences for students. Also, with increasing economic costs of honesty, subjects from both groups expect other participants to report more dishonestly.

[10] The fit for regressing students' expectations about other students' decisions on students' actual reports is only slightly better, with an adjusted $R^2 = 0.507$, see Table A4 and Figure A4 in the Appendix.

Discussion

In this study we examined dishonest behavior in different contexts to disentangle and directly test for descriptive and injunctive social norms for dishonesty in the finance industry. Specifically, we tested whether different situational contexts evoke different social norms and behavior with regard to honesty. Overall, we find that financial professionals do react to different situational framings as they are significantly more honest in a financial context in comparison with a neutral but meaningful and an abstract one. Students, in contrast, show no differences between situational frames. Thus, we find on average lower rates of dishonest reports for financial professionals, mostly driven by decisions in a financially-framed situation. While Cohn et al. (2014) argue that the prevalent business culture in the banking industry leads to more frequent lying, we demonstrate that financial professionals lie less frequently in a financial decision situation. Thus, we show that professionals' behavior is context- and situation-dependent. In contrast to a social identity-driven explanation, we illustrate that different situations evoke different social norms (Akerlof and Kranton, 2005) – injunctive and descriptive – which can potentially explain our results: the more socially *in*appropriate an action is seen by others, the less likely it is that people in our financial industry sample carry out this particular action. Finally, we largely reject a societal expectations-explanation of the observed honesty and dishonesty, respectively, as predictions from a student sample for the finance sample can explain our results only to a limited extent.

What drives and explains the lower level of dishonest decisions of financial professionals in a financial context? Two possible explanations we see are that (i) the increased negative media coverage and new regulation after the financial crisis of 2008/09 has led to a higher awareness and higher ethical standards in the finance industry. E.g. the European Union's Market in Financial Instruments Directive II (MiFID II; Directive 2014/65/EU, 2014) puts financial professionals under closer scrutiny by regulators, the media and by lawyers. As a consequence financial professionals may have become more sensitive towards dishonest behavior and misconduct and, thus, act more honestly in financial decision-situations. (ii) An alternative explanation would be, that what we see here is an instance of a very general phenomenon; namely that most professions operate under rules (legal and moral) that are not well understood e.g. by students and other outsiders. Our student subjects thus did not predict the higher level of honest answers by financial professionals, while within the profession this was well-understood and also acted accordingly. In a future research project a similar setting to ours could be applied to several other professions (say medical doctors, car mechanics, etc.) to explore whether the higher degree of honesty compared to students is specific for the finance industry or a more general property of many professions.

References

Abeler, Johannes, Daniele Nosenzo, Collin Raymond. 2019. Preferences for Truth-Telling. *Econometrica* **forth.**

Akerlof, George A, Rachel E Kranton. 2005. Identity and the Economics of Organizations. *Journal of Economic Perspectives* **19**(1) 9–32.

Alekseev, Aleksandr, Gary Charness, Uri Gneezy. 2017. Experimental methods: When and why contextual instructions are important. *Journal of Economic Behavior and Organization* **134** 48–59.

Bock, Olaf, Ingmar Baetge, Andreas Nicklisch. 2014. hroot: Hamburg Registration and Organization Online Tool. *European Economic Review* **71** 117–120.

Chang, Daphne, Roy Chen, Erin L Krupka. 2019. Rhetoric matters: A social identity explanation for the anomaly of framing. *Games and Economic Behavior* **forth.**

Charness, Gary, Martin Dufwenberg. 2006. Promises and Partnership. *Econometrica* **74**(6) 1579–1601.

Chen, Daniel L., Martin Schonger, Chris Wickens. 2016. oTree—An open-source platform for laboratory, online, and field experiments. *Journal of Behavioral and Experimental Finance* **9** 88–97.

Cohn, Alain, Ernst Fehr, Michel Andre Marechal. 2014. Business culture and dishonesty in the banking industry. *Nature* **516**(729) 86–89.

Directive 2014/65/EU. 2014. Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU Text with EEA relevance. *Official Journal* **L 173**(12.6.2014) 349–496.

Dohmen, Thomas, Armin Falk, David Huffman, Uwe Sunde, Jürgen Schupp, Gert G. Wagner. 2011. Individual risk attitudes: Measurement, determinants, and behavioral consequences. *Journal of the European Economic Association* **9**(3) 522–550.

Dreber, Anna, Tore Ellingsen, Magnus Johannesson, David G. Rand. 2013. Do people care about social context? Framing effects in dictator games. *Experimental Economics* **16**(3) 349–371.

Egan, Mark, Gregor Matvos, Amit Seru. 2019. The Market for Financial Adviser Misconduct. *Journal of Political Economy* **127**(1) 233–295.

Ellingsen, Tore, Magnus Johannesson, Johanna Mollerstrom, Sara Munkhammar. 2012. Social framing effects: Preferences or beliefs? *Games and Economic Behavior* **76**(1) 117–130.

Ellingsen, Tore, Magnus Johannesson, Johanna Mollerstrom, Sara Munkhammar. 2013. Gender differences in social framing effects. *Economics Letters* **118**(3) 470–472.

Falk, Armin, Anke Becker, Thomas Dohmen, Benjamin Enke, David Huffman, Uwe Sunde. 2018. Global Evidence on Economic Preferences. *The Quarterly Journal of Economics* **133**(4) 1645–1692.

Fischbacher, Urs, Franziska Föllmi-Heusi. 2013. Lies in disguise-an experimental study on cheating. *Journal of the European Economic Association* **11**(3) 525–547.

Gibson, Rajna, Carmen Tanner, Alexander F. Wagner. 2013. Preferences for truthfulness: Heterogeneity among and within individuals. *American Economic Review* **103**(1) 532–548.

Gneezy, Uri, Agne Kajackaite, Joel Sobel. 2018. Lying Aversion and the Size of the Lie. *American Economic Review* **108**(2) 419–453.

Hupé, Jean-Michel. 2018. Shortcomings of experimental economics to study human behavior: a reanalysis of Cohn et al. 2014, Nature 516, 86–89, "Business culture and dishonesty in the banking industry".

Irlenbusch, Bernd, Marie Claire Villeval. 2015. Behavioral ethics: How psychology influenced economics and how economics might inform psychology? *Current Opinion in Psychology* **6** 87–92.

Jacobsen, Catrine, Toke Reinholt Fosgaard, David Pascual-Ezama. 2018. Why Do We Lie? A Practical Guide To the Dishonesty Literature. *Journal of Economic Surveys* **32**(2) 357–387.

Kimbrough, Erik O, Alexander Vostroknutov. 2016. Eliciting Respect for Social Norms. *Journal of the European Economic Association* **14**(3) 608–638.

Krupka, Erin L., Stephen Leider, Ming Jiang. 2017. A Meeting of the Minds: Informal Agreements and Social Norms. *Management Science* **63**(6) 1708–1729.

Krupka, Erin L., Roberto A. Weber. 2013. Identifying Social Norms Using Coordination Games: Why Does Dictator Game Sharing Vary? *Journal of the European Economic Association* **11**(3) 495–524.

Liberman, Varda, Steven M. Samuels, Lee Ross. 2004. The Name of the Game: Predictive Power of Reputations versus Situational Labels in Determining Prisoner's Dilemma Game Moves. *Personality and Social Psychology Bulletin* **30**(9) 1175–1185.

Stöckl, Thomas. 2015. Dishonest or professional behavior? Can we tell? A comment on: Cohn et al. 2014, Nature 516, 86–89, "Business culture and dishonesty in the banking industry". *Journal of Behavioral and Experimental Finance* **8** 64–67.

Vranka, Marek A., Petr Houdek. 2015. Many faces of bankers' identity: How (not) to study dishonesty. *Frontiers in Psychology* **6** 1–4.

Appendix to
'Truth-telling and (dis)honesty norms in the finance industry'

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Materials and Methods

Experimental design

In two experiments with separate sets of subjects, we elicit (i) preferences for truthfulness in a *truth-telling task* and (ii) social norms towards dishonest actions in a *norm elicitation task*. In both experiments we apply a between-subjects design in which the three treatments are distinguished by how the particularly decision situation is framed, while the sets of payoffs are identical.

Experiment I: Truth-telling task

In Experiment I we elicit subjects' preferences for truthfulness in a truth-telling task based on Gibson et al. (2013). Participants are first given both the true and false values of a number they subsequently have to report. Subjects then face a choice list of five decision-situations, in each of which they have to make a binary choice on whether to tell the truth (report the true number) or tell a lie (report the false number). Each decision entails a trade-off between telling the truth and a monetary compensation – i.e., truth-telling has an economic cost, which is different for each of the five decision-situations: subjects always receive 10 euros for reporting the wrong number (which is 35), while the payment for reporting the correct number (which is 31) is 2, 4, 6, 8, and 10 euros, respectively, in the five decisions (for students all payoffs are divided by 2). The economic cost of telling the truth are thus 8, 6, 4, 2, and zero euros, respectively, in the five decision situations. Note that we purposely apply non-strategic decision-situations in which an individual's payoff is independent of others' choices.[11]

In a between-subjects design with three different treatments we vary the *framing*, as we state the decision situations in one of three specific contexts by applying differently framed experimental instructions. The three treatments reflect the three "levels" or types of contextual instructions as put forward in Alekseev et al. (2017): *abstract* (T_ABS), *meaningful* (T_NEU), and *evocative* (T_FIN).

[11] Thus, we follow Gibson et al. (2013) in eliminating any role for either social preferences such as, for example, altruism, reciprocity, and guilt aversion Charness and Dufwenberg (2006), or strategic concerns.

As a benchmark, we first abstract the task from any context in T_ABS: subjects are asked to imagine two states of nature of which only one is the current state which they subsequently are asked to report. The wording in T_ABS is:

> ABSTRACT: *Imagine there are two possible states of nature and one of your tasks is to report the current state.*

Second, in T_NEU, we add meaning to the task but in a comparatively neutral setting in the sense that the terms in use should not evoke strong emotions or connotations: Decision-makers are asked to imagine themselves in the position of a security clerk at a museum whose task is to report the number of visitors. The wording in T_NEU is:

> NEUTRAL: *Imagine you are a security clerk at a museum and one of your tasks is to inform the manager each week about the average number of visitors in the preceding week.*

Third, in T_FIN, we apply contextual instructions specifically placing participants in a financial decision situation: As the CEO of a publicly listed company, a subject's task is to announce the earnings per share (i.e., reporting either a true or false number on the current value of the company).[12] The wording in T_FIN is:

> FINANCIAL: *Imagine you are the Chief Executive Officer (CEO) of a publicly listed company and one of your tasks is to inform shareholders each quarter about the course of business and the earnings per share.*

In each of the three treatments subjects can report either the number 31 (the true number) or 35 (the wrong number resulting in a higher payoff; see the full instructions in the Appendix for the exact wording).

Experiment II: Norm elicitation task

In Experiment II, we elicit the underlying (injunctive) social norms towards dishonesty for each of the ten decisions in the three treatments outlined in Experiment I above. This is done with a different set of subjects. We thereby adapt the social norm-elicitation procedures (Krupka and Weber, 2013) to our truth-telling task: we describe one of the decision situations, a specific action, and its consequences regarding a participant's compensation, and then ask subjects to assess the social appropriateness of this specific action on a 6-point scale from 'very socially appropriate' to 'very socially inappropriate' (Kimbrough and Vostroknutov, 2016; Krupka et al., 2017).

In a coordination game set-up, subjects in the norm eliciation task are incentivized to choose for each action the social appropriateness rating most likely to be assigned to this action by other participants: they receive 4 euros for participation and 6 additional euros if their social appropriateness assessment matches the mode from all participants' assessments in one randomly determined decision.

[12] The contextual instructions in T_FIN follow the instructions used in Gibson et al. (2013) but are slightly shortened and adapted to keep the compositional structure identical across treatments.

Experimental implementation and procedure

The experiment was conducted online between November 2018 and April 2019 with two distinct subject groups: 246 students from the University of Innsbruck and a unique set of 160 high-skilled financial professionals.[13,14] 108 and 115 subjects, respectively, participated in the truth-telling task (Experiment I); the remainder participated in the norm elicitation task (Experiment II).

After reading on-screen instructions, subjects participate either in Experiment I or in Experiment II. We then elicit subjects' beliefs by asking subjects to assign percentage estimates on how many participants choose a specific action to each action in the truth-telling task. Finally, participants answer the general risk attitude question (SOEP, Dohmen et al., 2011) as well as a number of validated survey questions on their social preferences (Falk et al., 2018).

In both experiments and for all three treatments, one of the ten decisions is randomly chosen to determine a participant's compensation.

Experimental instructions

Experiment I: Truth-telling task

Dear participant,

Thank you very much for accepting our invitation to take part in this experiment. We are researchers from the University of Innsbruck conducting a short study which is intended to take about 10 minutes. With your participation, you will make an important contribution to research and you can earn money throughout the experiment.

After the experiment you will have several different options to collect your payment.

All data will be anonymous and no individual results will be disclosed publicly or to other participants of the experiment. The data will only be used for scientific purposes. This online study adheres to the principles of economic experiments: participants are not deceived and earnings are paid out in real. We guarantee at each stage of the data analyses that we will not trace back experimental decisions to participants' identities.

Please do not continue if you are on a mobile device – the experiment cannot be properly displayed on small screens. Also note that you will not be able to go back to previous pages throughout the whole study.

Thank you very much for participating!

(new page)

[13] Financial professionals taking part in this experiment are portfolio managers, fund managers, investment managers, traders, analysts, consultants, or work in similarly high-skilled areas in several different EU countries. They are on average 38 years old; 91.3% are male; all have previous experience with economic experiments.

[14] The experiment was conducted using oTree Chen et al. (2016); student subjects were recruited using hroot Bock et al. (2014).

abstract Imagine there are two possible states of nature and one of your tasks is to report the current state. The higher the reported state, the higher will be your compensation. You know the true state, but others do not. A state of 35 is anticipated, but you know that 31 would more accurately reflect the actual number.

(new page)

In the following, there will be five possible situations for each of which you have to make a choice on what state you will report.

The state you report determines how much money you will be paid. At the end of the experiment one of the five choices will be randomly drawn for payment.

---

neutral Imagine you are a security clerk at a museum and one of your tasks is to inform the manager each week about the average number of visitors in the preceding week. The higher the number of visitors, the higher will be your compensation. As the security clerk, you know the true number of visitors, but the manager does not. The manager anticipates 35 visitors per day, but you know that 31 visitors per day would more accurately reflect the actual number.

(new page)

In the following, there will be five possible situations for each of which you have to make a choice on how many visitors you will report.

The number of visitors you report determines how much money you will be paid. At the end of the experiment one of the five choices will be randomly drawn for payment.

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financial Imagine you are the Chief Executive Officer (CEO) of a publicly listed company and one of your tasks is to inform shareholders each quarter about the course of business and the earnings per share. The higher the announced earnings, the higher will be your compensation. As the CEO, you know the true earnings, but shareholders do not. Shareholders anticipate the announcement of 35 cents as earnings per share, but you know that earnings of 31 cents per share would more accurately reflect the actual number.

(new page)

In the following, there will be five possible situations for each of which you have to make a choice on how many cents of earnings per share you will announce.

The earnings you announce determine how much money you will be paid. At the end of the experiment one of the five choices will be randomly drawn for payment.

Experiment II: Norm elicitation task

Dear participant,

Thank you very much for accepting our invitation to take part in this experiment. We are researchers from the University of Innsbruck conducting a short study which is intended to take about 10 minutes. With your participation, you will make an important contribution to research and you can earn money: you receive 4 euros for participating in this experiment and can earn additional money throughout the experiment.

After the experiment you will have several different options to collect your payment.

All data will be anonymous and no individual results will be disclosed publicly or to other participants of the experiment. The data will only be used for scientific purposes. This online study adheres to the principles of economic experiments: participants are not deceived and earnings are paid out in real. We guarantee at each stage of the data analyses that we will not trace back experimental decisions to participants' identities.

Please do not continue if you are on a mobile device – the experiment cannot be properly displayed on small screens. Also note that you will not be able to go back to previous pages throughout the whole study.

Thank you very much for participating!

(new page)

On the following screens, you will read descriptions of a series of situations.

Each situation corresponds to a situation in an online experiment, which we are conducting with a group of subjects. The participants in this experiment are financial professionals predominantly occupied as Private Banker, Trader, Investment Banker, Portfolio Manager, or Fund Manager.

In each of the described situations one experimental participant, "Participant A", must make a decision. For each situation, you will be given a description of the decision faced by Participant A. This description will include several possible choices available to this participant.

For this task you will earn an additional 6 euros if you give the response most frequently given by other participants. Specifically: at the end of the experiment, we will randomly select one of the situations and one of the experimental participant's possible choices in that situation. If you select the answer most frequently selected by other participants, you will earn 6 euros from this task.

(new page)

abstract Participant A should imagine that there are two possible states of nature and one of the participant's tasks is to report the current state. The higher the reported state, the higher will be the participant's compensation. The participant knows the true state, but others do not. A state of 35 is anticipated, but the participant knows that 31 would more accurately reflect the actual number.

Participant A has two choices:

- Report 31. In this case, the participant's compensation will be 2 EUR.
- Report 35. In this case, the participant's compensation will be 10 EUR.

---

neutral Participant A should imagine that he/she is a security clerk at a museum and one of the participant's tasks is to inform the manager each week about the average number of visitors in the preceding week. The higher the number of visitors, the higher will be the participant's compensation. As the security clerk, the participant knows the true number of visitors, but the manager does not. The manager anticipates 35 visitors per day, but the participant knows that 31 visitors per day would more accurately reflect the actual number.

Participant A has two choices:

- Report 31 visitors. In this case, the participant's compensation will be 2 EUR.
- Report 35 visitors. In this case, the participant's compensation will be 10 EUR.

---

financial Participant A should imagine that he/she is the Chief Executive Officer (CEO) of a publicly listed company and one of the participant's tasks is to inform shareholders each quarter about the course of business and the earnings per share. The higher the announced earnings, the higher will be the participant's compensation. As the CEO, the participant knows the true earnings, but shareholders do not. Shareholders anticipate the announcement of 35 cents as earnings per share, but the participant knows that earnings of 31 cents per share would more accurately reflect the actual number.

Participant A has two choices:

- Announce 31 cents per share. In this case, the participant's compensation will be 2 EUR.
- Announce 35 cents per share. In this case, the participant's compensation will be 10 EUR.

Your Task: For each of Participant A's options, please indicate whether you believe choosing that option is very socially inappropriate, socially inappropriate, somewhat socially inappropriate, somewhat socially appropriate, socially appropriate, or very socially appropriate.

Screenshots of the decision screens

Experiment I: Truth-telling task

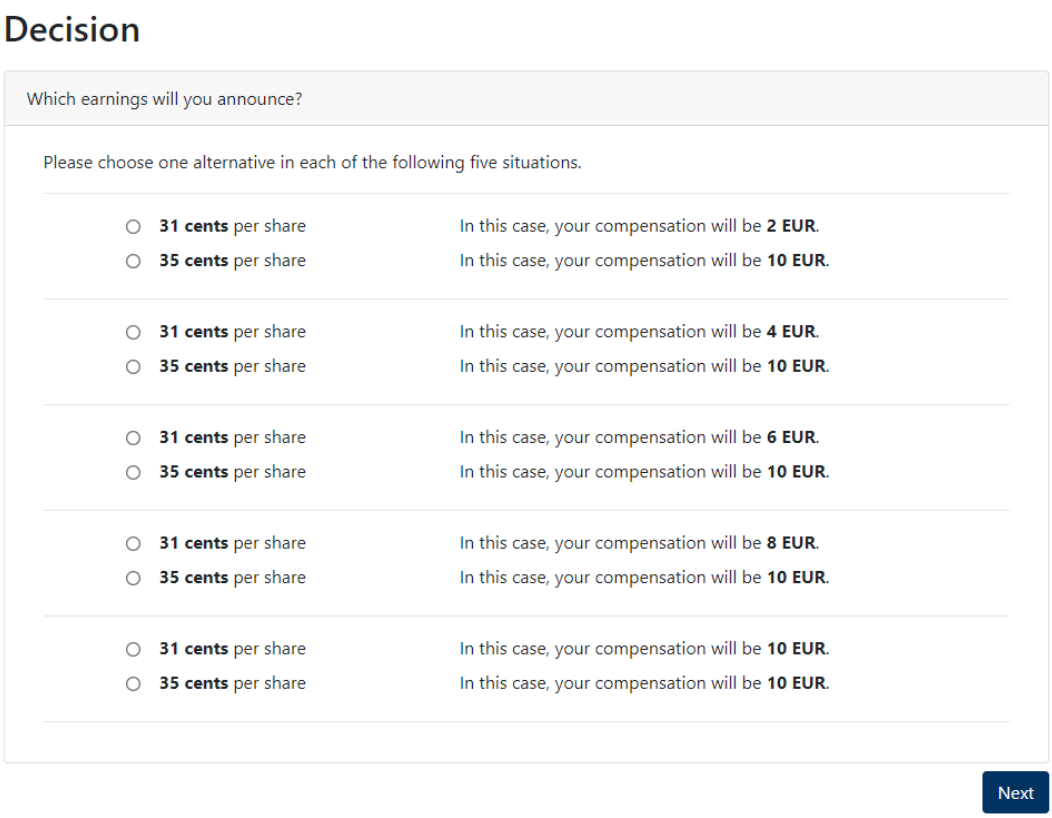

Figure A1: Truth-telling task.

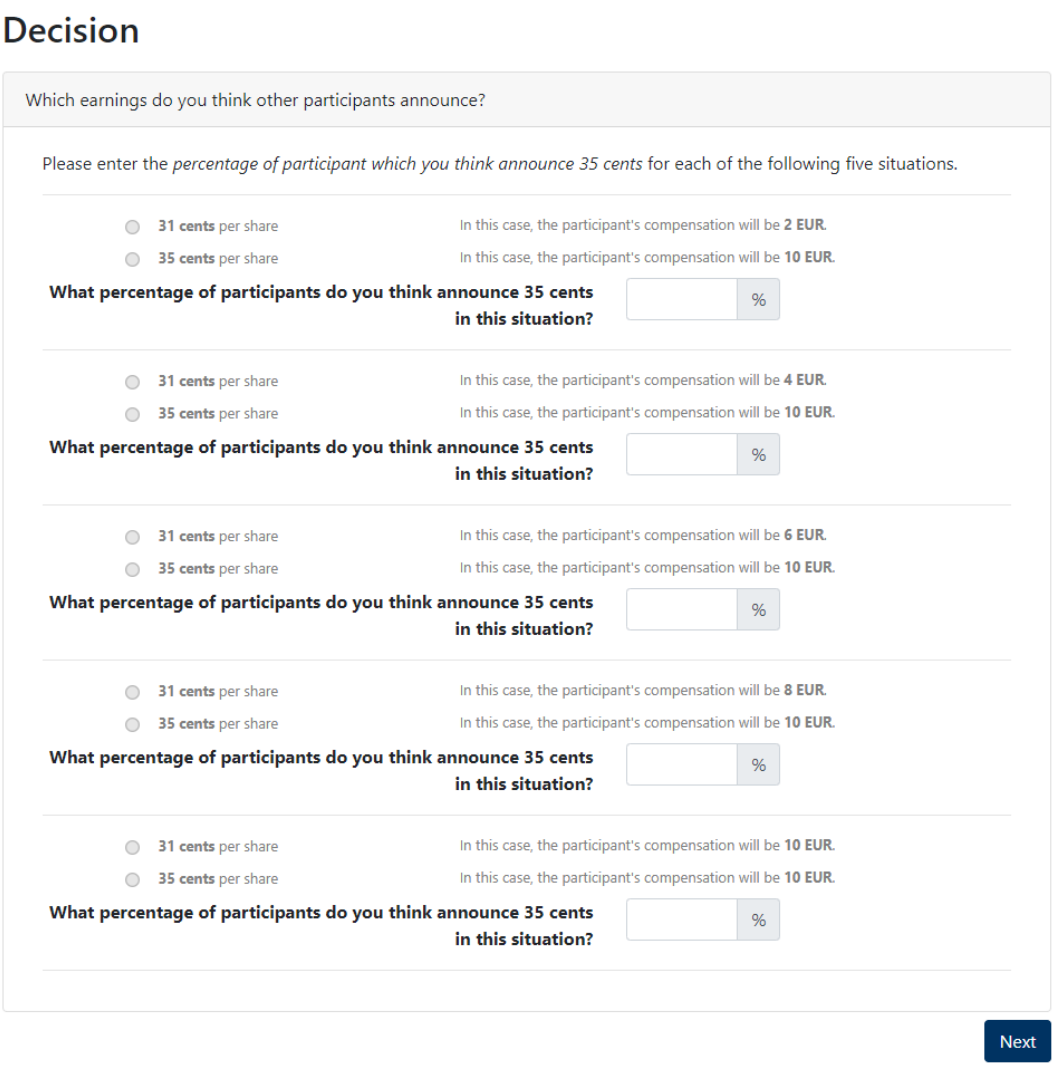

Figure A2: Belief elicitation. This screen is identical for Experiment I and Experiment II.

Experiment II: Norm elicitation task

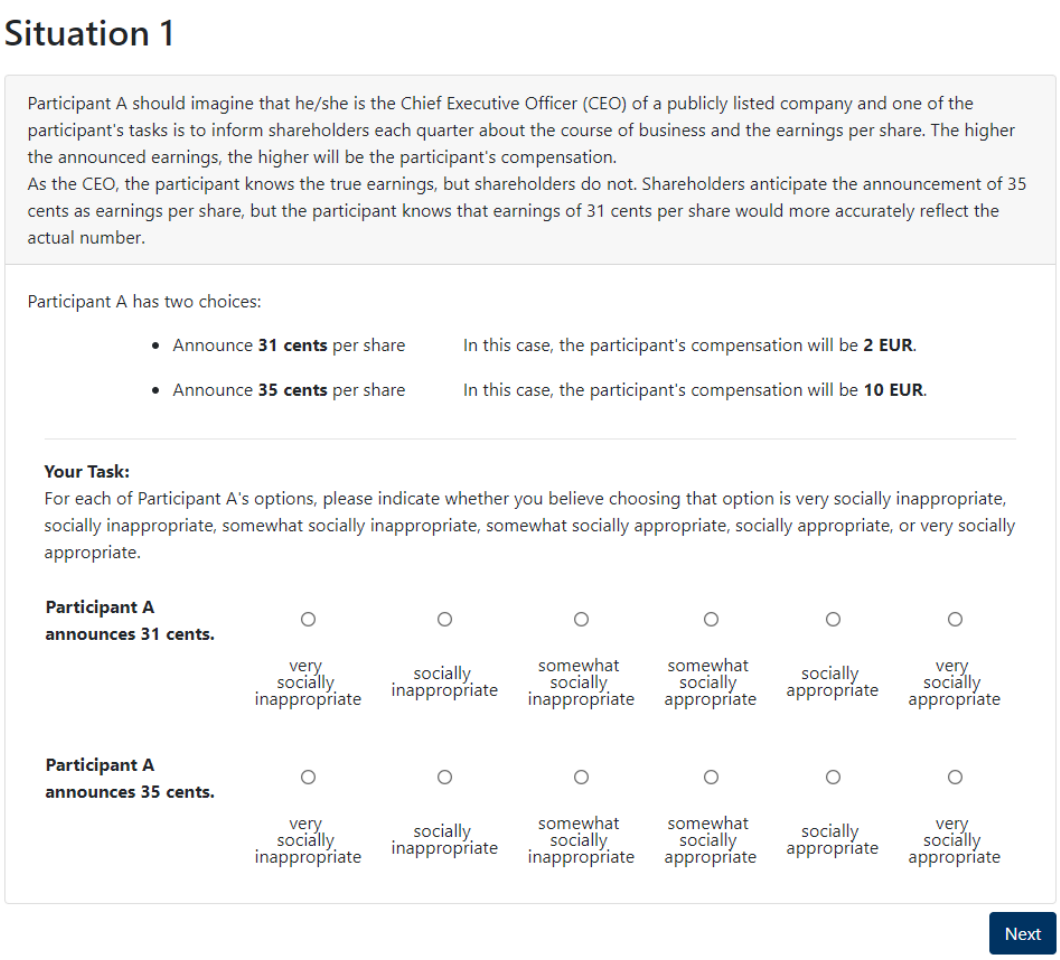

Figure A3: Norm elicitation.

Fig. A4

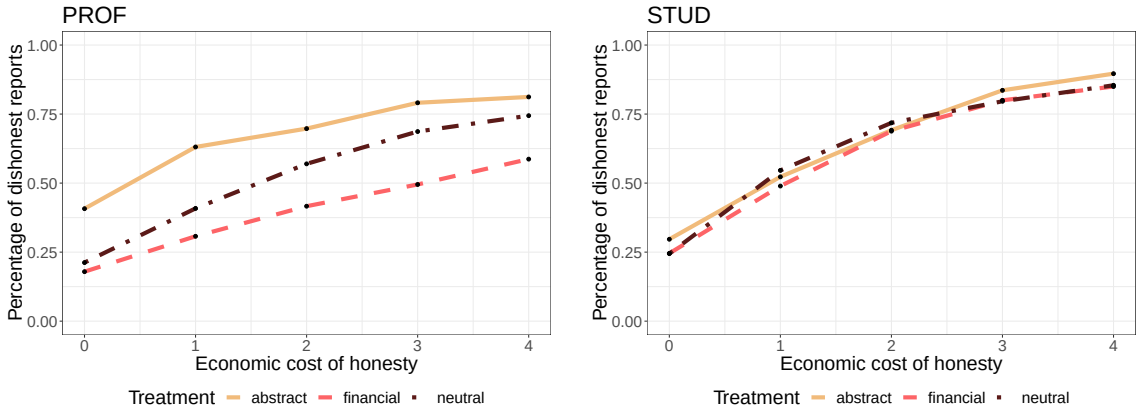

Figure A4: Beliefs about the percentage of dishonest reports as a function of the economic costs of honesty (Experiment I).

Tables A1 to A3

Table A1: **Linear estimation on the probability of a dishonest report.** This table shows the estimated coefficients from linear probability models using ordinary least squares regressions. $I_{\text{T\_FIN}}$ is a dummy variable taking the value 1 for treatment T_FIN and 0 otherwise; $I_{\text{T\_NEU}}$ is constructed analogously. PROF is a dummy variable taking the value 1 for financial professionals subjects and 0 otherwise. 'Risk attitude' is a subjects' risk aversion from the SOEP general risk question on a scale from 1 ('not willing to take risk') to 7 ('very willing to take risk'). 'Investment' is a dummy variable taking the value 1 of the subjects has invested in financial products in the past 5 years and 0 otherwise. 'Patience', 'Negative Reciprocity 1', 'Negative Reciprocity 2', 'Negative Reciprocity 3', 'Positive Reciprocity', 'Altruism' and 'Trust' are answers from survey questions from Falk et al. (2018) and are measured from 1 to 7. 'Order' indicates whether decision-situations were presented in ascending or descending order. Standard errors are clustered at the subject-level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$ (double-sided tests).

	Dependent variable: Prob(Dishonest report)			
	(1)	(2)	(3)	(4)
Economic cost of honesty	0.176***	0.176***	0.176***	0.176***
	(0.009)	(0.009)	(0.009)	(0.009)
$I_{\text{T\_FIN}}$	−0.140***	−0.145***	−0.006	0.054
	(0.052)	(0.050)	(0.056)	(0.055)
$I_{\text{T\_NEU}}$	−0.091*	−0.093*	−0.033	−0.008
	(0.050)	(0.050)	(0.063)	(0.061)
PROF		−0.163***	−0.030	−0.075
		(0.039)	(0.073)	(0.089)
PROF × $I_{\text{T\_FIN}}$			−0.270***	−0.321***
			(0.096)	(0.096)
PROF × $I_{\text{T\_NEU}}$			−0.111	−0.109
			(0.098)	(0.099)
Female				0.019
				(0.049)
Risk attitude				0.012
				(0.014)
Age				−0.003
				(0.003)
Investment				0.137**
				(0.058)
Patience				0.002
				(0.016)
Negative Reciprocity 1				−0.003
				(0.016)
Negative Reciprocity 2				−0.0002
				(0.016)
Altruism				−0.042***
				(0.014)
Positive Reciprocity				0.047**
				(0.023)
Negative Reciprocity 3				0.032**
				(0.014)
Trust				−0.002
				(0.013)
Order				0.029
				(0.037)
Constant	0.285***	0.372***	0.301***	0.061
	(0.043)	(0.048)	(0.049)	(0.193)
Observations	1,115	1,115	1,115	1,115
R^2	0.264	0.291	0.303	0.343
Adjusted R^2	0.262	0.289	0.299	0.333

Table A2: **Subject-level ordinary least squares estimation of the percentage of dishonest reports.** This table shows estimates from ordinary least squares regressions on the percentage of dishonest reports (dependent variable) at the subject-level. $I_{\text{T\_FIN}}$ is a dummy variable taking the value 1 for treatment T_FIN and 0 otherwise; $I_{\text{T\_NEU}}$ is constructed analogously. PROF is a dummy variable taking the value 1 for financial professionals subjects and 0 otherwise. 'Risk attitude' is a subjects' risk aversion from the SOEP general risk question on a scale from 1 ('not willing to take risk') to 7 ('very willing to take risk'). 'Investment' is a dummy variable taking the value 1 of the subjects has invested in financial products in the past 5 years and 0 otherwise. 'Patience', 'Negative Reciprocity 1', 'Negative Reciprocity 2', 'Negative Reciprocity 3', 'Positive Reciprocity', 'Altruism' and 'Trust' are answers from survey questions from Falk et al. (2018) and are measured from 1 to 7. 'Order' indicates whether decision-situations were presented in ascending or descending order. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$ (double-sided tests).

	Dependent variable: Number of dishonest reports			
	(1)	(2)	(3)	(4)
$I_{\text{T\_FIN}}$	-0.701^{***}	-0.726^{***}	-0.030	0.269
	(0.259)	(0.251)	(0.281)	(0.283)
$I_{\text{T\_NEU}}$	-0.453^{*}	-0.463^{*}	-0.167	-0.042
	(0.253)	(0.253)	(0.319)	(0.315)
PROF		-0.817^{***}	-0.149	-0.377
		(0.197)	(0.368)	(0.459)
PROF $\times$ $I_{\text{T\_FIN}}$			-1.351^{***}	-1.605^{***}
			(0.484)	(0.494)
PROF $\times$ $I_{\text{T\_NEU}}$			-0.556	-0.546
			(0.497)	(0.511)
Female				0.097
				(0.255)
Risk attitude				0.062
				(0.071)
Age				-0.014
				(0.016)
Investment				0.684^{**}
				(0.299)
Order				0.146
				(0.193)
Patience				0.008
				(0.083)
Negative Reciprocity 1				-0.014
				(0.083)
Negative Reciprocity 2				-0.001
				(0.081)
Altruism				-0.212^{***}
				(0.074)
Positive Reciprocity				0.233^{**}
				(0.117)
Negative Reciprocity 3				0.161^{**}
				(0.072)
Trust				-0.009
				(0.069)
Constant	3.188^{***}	3.622^{***}	3.267^{***}	2.068^{**}
	(0.187)	(0.200)	(0.213)	(0.997)
Observations	223	223	223	223
R^2	0.032	0.102	0.132	0.236
Adjusted R^2	0.024	0.089	0.112	0.172

Table A3: **Decision-situation-level ordinary least squares estimation of the percentage of dishonest reports.** This table shows estimates from ordinary least squares regressions on the percentage of dishonest reports from Experiment I (dependent variable) as a function of the expected percentage of dishonest reports estimated by subjects in Experiment II at the decision-situation-level; that is, there is one observation for each of the five possible decision-situations in each of the three treatments. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$ (double-sided tests).

	Dependent variable: Percentage of dishonest reports (observed in Experiment I)		
	PROF	STUD$^{\text{PROF}}$	STUD
	(1)	(2)	(3)
Expected percentage of dishonest reports (elicited in Experiment II)	1.537***	1.649***	2.091***
	(0.159)	(0.467)	(0.533)
Constant	−0.027	−0.380	−0.387
	(0.058)	(0.250)	(0.268)
Observations	15	15	15
R^2	0.878	0.489	0.542
Adjusted R^2	0.869	0.450	0.507