Contents lists available at ScienceDirect

Journal of Behavioral and Experimental Finance

journal homepage: www.elsevier.com/locate/jbef

Full length article

Risk-taking on behalf of others☆

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ARTICLE INFO

ABSTRACT

We present an experimental study on how people take risk on behalf of others. We use three different elicitation methods, and study how each subject makes decisions both on behalf of own money and on behalf of another individual's money. We find a weak tendency of lower risk-taking with others' money compared to own money. However, subjects believe that other participants take more risk with other people's money than with their own. At the same time, subjects on average think that others are more risk averse than themselves. The data also reveals that subjects are quite inconsistent when making risk decisions on behalf of others. A large majority of subjects alternates between taking more risk, less risk or the same amount of risk with other people's money compared to own money.

1. Introduction

In the aftermath of the 2007–2008 financial crisis, Paul Krugman claimed that "Overpaid bankers taking big risks with other people's money brought the world economy to its knees". It is now generally accepted that the financial crisis was caused by excessive risk-taking and misaligned incentives. However, it is less clear whether people, ceteris paribus, actually take more risk with other people's money than with their own money, i.e. if people are less risk averse on behalf of others when there are no monetary incentives to guide behavior. Hence, this is our research question: How do people take risk with other people's money? Furthermore, is there any systematic heterogeneity with respect to how people manage others' compared with own money?

Evidence so far is mixed. Chakravarty et al. (2011), Polman (2012), Agranov et al. (2014) and Pollmann et al. (2014) find in different experimental contexts that subjects tend to take more risk on behalf of others than on behalf of themselves. Harrison et al. (2013), Luzuriaga (2017) and Barrafrem and Hausfeld (2019) find no difference, while on the other hand, Charness and Jackson (2009), Reynolds et al. (2009), Bolton and Ockenfels (2010), Eriksen and Kvaløy (2010), and Pahlke et al. (2015) find increased risk aversion when the decisions involve other people's money.

We will discuss and complement this literature in more detail in Section 2. See also Table 1 in Section 2.

The main ambition with the present paper is to collect a broader set of evidence. Given the large set of previous empirical studies presenting mixed results, the question arises to which extent a new approach in terms of research question, experimental design, and methodology, can provide a significant contribution to the existing literature. To achieve this goal, we study decisions from a within-subject design which allows us to distinguish the individuals' consistency when taking risk for others compared with for themselves. Moreover, while most of the previous work analyze behavior from a single elicitation method, we confront risk-attitudes from three different and well-established methods. Finally, we explore the role of beliefs about risk-taking on actual risk-raking on behalf of others.

First we employ the Eckel and Grossman's (2002) gamble to elicit actual risk-taking behavior on behalf of own and others' money. Then we compare this with two well-known hypothetical elicitation methods, the labor market choice by Barsky et al. (1997) and the investment choice used in the SOEP survey (see Dohmen et al., 2011).[1] We also elicit beliefs about others' risk preferences, and about how people think about how others take risk on behalf of others.

The main results are as follows: First, there is a slight tendency that subjects take less risk with others' money compared with own money. From the Eckel and Grossman gamble, we find that the averages are not significantly different, but there are

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[1] The SOEP is a widely used and well-recognized panel survey that provides personal and household information including political and several social statistics from the German population. The survey was created in 1984 by the German Institute for Economic Research (DIW Berlin).

significantly fewer subjects taking high risk with others' money compared with own money. From the labor market choice, risk-taking is significantly lower when the choice involves another person. Subjects choose riskier job offers when it concerns them, than when the consequences are borne by someone else. For the hypothetical lottery choice, however, there are no significant differences between managing own and others' money.

The main tendency of lower risk-taking on behalf of others is also found when we simply ask the subjects: Are you more or less willing to take risk with own money compared with others' money? Of the subjects, 59% answered that they are more willing to take risk with own money, which is significantly different from 50%. We also find that subjects on average think that others are more risk averse than themselves. Moreover, when we look at the beliefs about how other subjects take risk on behalf of others, we find that subjects believe that other participants take less risk with their own money than with other people's money. Hence, the beliefs are not consistent with actual behavior.

The data also shows that subjects are quite inconsistent when making risk decisions on behalf of others. A large majority of subjects alternates between taking more risk, less risk or the same amount of risk with other people's money (compared to own money) over the three decision tasks. Approximately one third of the subjects increases risk-taking when it is on behalf of another subject, while one third reduces risk-taking, but only 3% of the subjects take consistently more or less risk with other people's money over all the three tasks.

The rest of the paper is organized as follows. In Section 2 we present a brief literature review and in Section 3 we introduce the experimental design and procedure. In Section 4 the results are shown, while Section 5 concludes. The instructions of the experiment and complementary tables are relegated to Appendix.

2. Related literature

Recently, a small literature has emerged investigating how people take risk with other people's money. See Polman and Wu (2019) for a recent meta-analysis investigating decision making under risk for others. Making use of data from 128 papers they find a small and significant effect showing higher risk-taking on behalf of others. As in the experimental literature on risk-taking with own money, the elicitation methods and experimental contexts vary. Some employ neutral phrasing while others use more context, such as "investment managers" and "clients". The experiments also vary with respect to whom the decision makers make decisions for. While some investigate how people take risk on behalf of groups (which they are a part of), others investigate how people take risk on behalf of another individual. There are also some differences with respect to what kind of risk aversion is measured. Some researchers measure loss aversion while others measure standard risk aversion.

The results from the different experiments are mixed. Chakravarty et al. (2011) use the well-established multiple price list (MPL) procedure (see Holt and Laury, 2002, 2005 and Harrison et al., 2005) and find that decision makers take more risk with others' money than with own money. Eriksen and Kvaløy (2010), Pollmann et al. (2014), and Montinari and Rancan (2013) use the Gneezy and Potters (1997) investment task. The former find more risk aversion on behalf of others, while the latter two find lower risk-taking on behalf of others. Luzuriaga (2017) employs also the Eckel and Grossman's (2002) gamble, and finds that on average risk-taking is not significantly different for oneself and for others. A different stream in the literature studies the effect of accountability. Bolton et al. (2015) find that social responsibility promotes a conservative risk behavior. Sutter (2009) finds more

risk-seeking behavior using an investment task similar to the Gneezy and Potters (1997), while Humphrey and Renner (2011) study decisions with responsibility where a passive subject and a decision-maker receive the same outcome. They find no evidence that responsibility leads to risk-aversion in a lottery choice task, but they find less co-operation in the public goods game (strategic risk) compared to decisions where subjects act solely on their own behalf. Pollmann et al. also study this effect. They find that accountability in terms of monetary rewards reduces risk-taking on behalf of others. In contrast, Agranov et al. (2014) and Andersson et al. (2019) find that incentives increase risk-taking on behalf of others, but in these studies, incentives are tournament-based, which is known to trigger risk-taking. Pahlke et al. (2015) explores responsibility effects in decision making under risk when a decision-maker bears responsibility for both others and her own. They find increased risk aversion in the gain domain, and risk seeking behavior in the loss domain. However, for small probability gains the authors observe increased risk seeking. Clearly related is Füllbrunn and Luhan (2019), who look at how decision making for others is affected by different incentive schemes. Their experiment shows that subjects invest less for others compared to for themselves, both when there are no incentives to guide behavior and when incentives are perfectly aligned. However, when introducing limited liability, subjects increase risk-taking on behalf of others. Also related is Kvaløy and Luzuriaga (2014), who study trust decisions on behalf of others. They find no significant differences in trust level between subjects who invest own money and subjects who invest on behalf of others.

Recently, a few papers have experimentally looked at risk-taking making use of professionals. While Holzmeister et al. (2019) focus on clients' delegation decisions, Kirchler et al. (2019) investigate the effect of rank and monetary incentives of professional managers when investing on behalf of others. Similar to what is observed when professionals make decisions concerning themselves, Kirchler et al. (2019) show that professionals who are lagging in the ranking increase risk-taking compared to higher ranked peers. Also studying financial agency settings are Kling et al. (2019). Using a student subject pool they find that agents tend to comply with their clients risk preferences to a large degree, even when incentives would point towards greater risk-taking.

Using different elicitation methods (see Table 1), a few studies investigate loss aversion on behalf of others. Vieider et al. (2015), Pahlke et al. (2015), Andersson et al. (2014), Polman (2012), and Füllbrunn and Luhan (2017) find reduced loss aversion on behalf of others, while Eriksen and Kvaløy (2010) find that people's degree of *myopic* loss aversion is lower when deciding for others. Further, there are several experiments studying how people make decisions on behalf of a group (which the decision maker him/herself is part of). Füllbrunn and Luhan (2015), Reynolds et al. (2009), Pahlke et al. (2015), Charness and Jackson (2009), and Bolton and Ockenfels (2010) use different elicitation methods, but all find lower risk-taking when the outcome affects a group and not only themselves. (see Table 1)

Finally, there are some recent papers investigating risk-taking on behalf of others and the effect of different behavioral biases and social preferences. While Fornasari et al. (2019) find that subjects exhibit higher degree of risk aversion when deciding for others, they also show that risk assessments can be predicted by subjects' social preferences, calling for more attention on the role of social preferences. Furthermore, research on whether well-known behavioral biases also apply when making decisions for others, Ifcher and Zarghamee (2019) find mostly insignificant differences comparing decision-making on behalf of others and oneself. Somewhat in the same vein, Vermeer et al. (2019)

Table 1
Experimental studies on risk-taking on behalf of others.

Authors	Title	Risk-taking for others vs. own	Elicitation method	Design	Remark
Reynolds et al. (2009)	Risky shift versus cautious shift: determining differences in risk taking between private and public management decision-making	Less risk-taking on behalf of others.	Binary choice problem.	Within	Decision-making on behalf of a group.
Charness and Jackson (2009)	The role of responsibility in strategic risk-taking	Less risk-taking on behalf of others.	Stag hunt game.	Within	Decision-making on behalf of a group.
Sutter (2009)	Individual behavior and group membership: comment	More risk-taking on behalf of others.	Risky investment task similar to Gneezy and Potters (1997).	Between	Accountability and recency effect.
Bolton and Ockenfels (2010)	Betrayal aversion: evidence from Brazil, China, Oman, Switzerland, Turkey, and the United States: comment	Less risk-taking on behalf of others.	Binary choice problem.	Between	Decision-making on behalf of a group.
Eriksen and Kvaløy (2010)	Myopic investment management	Less risk-taking on behalf of others.	Gneezy and Potters (1997) investment task.	Between	Myopic loss-aversion.
Chakravarty et al. (2011)	Are you risk averse over other peoples' money	More risk-taking on behalf of others.	Multiple price list by Holt and Laury (2002, 2005)) and Harrison et al. (2005).	Within	Incentivized beliefs elicitation.
Humphrey and Renner (2011)	The social costs of responsibility	Lottery: no difference/public goods: less co-operation.	MPL (Holt and Laury, 2002), and public goods game.	Between	Accountability.
Pahlke et al. (2012)	Risk-taking for others under accountability.	Less loss/risk-aversion on behalf of others.	Choice between sure amount and binary 50–50 prospect.	Between	Accountability and loss aversion.
Polman (2012)	Self–other decision making and loss aversion	Less loss-aversion on behalf of others.	Binary choice problem.	Between and within	Loss-aversion.
Harrison et al. (2013)	Preferences over social risk	No difference.	MPL (Holt and Laury, 2002).	Within	Decision-making on behalf of a group.
Agranov et al. (2014)	An experimental study of the impact of competition for other people's money: the portfolio manager market	More risk-taking on behalf of others.	Risky and safe project to invest.	Between and within	Incentivized decision makers.
Montinari and Rancan (2013)	Social preferences under risk: the role of social distance	Less risk-taking on behalf of others.	Investment task similar to Gneezy and Potters (1997) and Charness and Gneezy (2010).	Within	Lotteries with negative expected value.
Pollmann et al. (2014)	Risk taking by agents: The role of ex-ante and ex-post accountability	More risk-taking on behalf of others.	Gneezy and Potters (1997) investment task.	Between	Incentivized decision makers.
Kvaløy and Luzuriaga (2014)	Playing the trust game with other people's money	No difference.	Trust game (Berg et al., 1995).	Between	Trust decisions on behalf of others.
Andersson et al. (2014)	Deciding for others reduces loss aversion	Less loss-aversion on behalf of others when losses are possible.	Variation of MPL task by Holt and Laury (2005).	Between	Loss-aversion.
Bolton et al. (2015)	Social responsibility promotes conservative risk behavior	Less risk-taking on behalf of others.	Variation of MPL task by Holt and Laury (2002).	Within	Accountability, group risk-taking.
Pahlke et al. (2015)	Responsibility effects in decision making under risk	Less risk-taking on behalf of others.	Binary choice problem.	Between	Decision-making on behalf of a group.
Vieider et al. (2015)	Risk taking for oneself and others: A structural model approach	Small prob. gain-large prob. loss: risk-seeking/large prob. gain-small prob. loss: risk-av.	Certainty equivalents choice list.	Between	Accountability and loss aversion.
Füllbrunn and Luhan (2015)	Am I my peer's keeper? Social responsibility in financial decision making	Less risk-taking on behalf of others.	Risky investment task similar to Gneezy and Potters (1997).	Within	Decision-making on behalf of a group.
König-Kersting and Trautmann (2016)	Ambiguity attitudes in decisions for others.	No self-other disparities for ambiguity attitudes.	Ellsberg urn task, described in Trautmann and Van De Kuilen (2015).	Between	Ambiguity attitudes.
Füllbrunn and Luhan (2017)	Decision making for others: the case of loss aversion.	Lower loss aversion on behalf of others when no consequences for decision maker. No difference when payoffs are aligned.	Lottery choice task. Gächter et al. (2010), adaption of Fehr and Goette (2007).	Between	Decision-making on behalf of others, with and without aligned incentives.
Luzuriaga (2017)	Taking risk with other people's money: does information about the others matter?	No difference.	Eckel and Grossman (2002) gamble	Between	Information about the target.

Table 1 (*continued*).

Authors	Title	Risk-taking for others vs. own	Elicitation method	Design	Remark
Andersson et al. (2019)	Risking other people's money: experimental evidence on the role of incentives and personality traits.	More risk-taking on behalf of others when incentivized.	Binary choice problem (similar to Binswanger, 1980 or Tanaka et al., 2010).	Between	Incentivized decision makers.
Füllbrunn and Luhan (2019)	Responsibility and limited liability in decision making for others — An experimental consideration	Less risk-taking on behalf of others / more risk-taking on behalf of others.	Gneezy and Potters (1997) investment task.	Within and between	Decision-making on behalf of a group.
Barrafrem and Hausfeld (2019)	Tracing risky decisions for oneself and others: the role of intuition and deliberation	No difference.	Lottery task adopted from Hey and Orme (1994).	Within and between	Eye tracing.
Fornasari et al. (2019)	Interpersonal risk assessment and social preferences: an experimental study	Less risk-taking on behalf of others.	Choice task.	Within and between	Social preferences.
Vermeer et al. (2019)	Third-party decision-making under risk as a function of prior gains and losses	Less prone to the gain/loss context when deciding for others.	Time-estimation task followed by a binary mixed gamble.	Between	The effect of prior losses and gains on decision-making for others.

Table 2

The design and experimental tasks.

Lottery-OPM + BeliefOPM	HypoJob-OPM	HypoInvest-OPM
————————→ PART 1		————————→
Lottery-OWN + BeliefOWN	HypoJob-OWN	HypoInvest-OWN
————————→ PART 2		————————→

Note: To control for potential order effects approximately half of the subjects (100 subjects) started with PART 1, while the other half (90 subjects) started with PART 2. Subjects were not informed about the different stages in the beginning of the experiment. Instead, information about the different stages were given just before each decision task. Information about outcomes and payoffs were given at the end of the whole experiment.

investigate how prior losses and gains affect risk-taking when deciding for others. They find an increase in risk-taking after losses compared to after gains. However, the effect is smaller when deciding for others.

As we see it is hard to find any clear tendency, except that loss aversion seems lower on behalf of others than on behalf of own money, while risk aversion on behalf of groups seems higher. Our paper focuses on standard risk-taking on behalf of a single anonymous individual and is thus closest to Chakravarty et al. (2011) and Pollmann et al. (2014). We use a within design which enable us to study how individuals change their decision when they take risk for others compared with for themselves. Moreover, we use three different elicitation methods, while the other studies use only one. Finally, we elicit beliefs about others' preferences.

3. Experimental design and procedure

In order to answer our research questions we use three well-established measures of risk attitudes. Table 2 presents the design and the different tasks for the subjects.

The experiment starts with Eckel and Grossman's (2002) elicitation procedure, where participants are asked to play a gamble both on behalf of another participant, denoted *Lottery-OPM*, and also on behalf of themselves, denoted *Lottery-OWN*. As shown in Table 2 approximately half of the subjects started with Part 1, while the remaining subjects started with Part 2. A follow-up question was stated to elicit the beliefs about the preferences of the other participants when deciding on behalf of others (*Belief OPM*) in Part 1, and the beliefs about the participants' own

risk preferences (*Belief OWN*) in Part 2.[2] Next, participants responded to a hypothetical income gamble, *HypoJob-OPM/HypoJob-OWN* and to a hypothetical investment opportunity, HypoInvest-OPM/HypoInvest-OWN. The order of the decisions on behalf of others and on behalf of themselves was alternated. Thus, all subjects participated in both Part 1 and Part 2. Subjects were not informed about the different stages at the beginning of the experiment. Instead, they obtained instructions just before each decision task. All outcomes in terms of decisions and payoffs were presented to the subjects after the complement of all parts of the experiment.

Therefore, in this experiment, each subject makes one decision for each of the three elicitation procedures when consequences (real and hypothetical) are born by themselves, and one decision for each of the three elicitation procedures when consequences (real and hypothetical) are born by a randomly drawn subject. Since the *HypoJob* task and the *HypoInvest* task are both hypothetical in terms of earnings, earnings in the experiment are solely determined by the choices made in the Lottery task Eckel and Grossmann's gamble. That is, the earnings for subject *i* consists of the payoff from the Eckel and Grossmann's gamble (*Lottery*) when player *i* made a choice concerning him/herself, and the payoff from the Eckel and Grossmann's gamble when a random and anonymous player *j* made a choice concerning player *i*.

A total of 190 students from the University of Stavanger in Norway participated in the experiment. The students were recruited by email and assigned within each of the 12 sessions. They were told that by participating in an economic experiment they would have the possibility to earn a decent sum of money. The stakes in this experiment are relatively higher than the average payment that a student would earn in a work hour. The experiment was conducted and programmed with the software z-Tree (Fischbacher, 2007). All instructions were on-screen and given in Norwegian.

3.1. The elicitation methods

The first elicitation method is the lottery task shown in Table 3, and involves choosing one lottery gamble from a set of six gambles (replicating the framework by Eckel and Grossman, 2002, 2008; Dave et al., 2010). One of them (gamble 1) represents a safe option with sure payoff (NOK 100, about 14 EURO). From

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[2] We asked subjects to state which lottery they believe others would choose when deciding for themselves (*Belief OWN*), as well as the lottery decision they believe others would choose when deciding for others (*Belief OPM*).

Table 3
Lottery task.

Gamble	Event	Payoff (NOK)	Probability	Expected payoff	Risk Std.dev
Gamble 1	High	100	50%	100	0
	Low	100	50%		
Gamble 2	High	86	50%	107.5	21.5
	Low	129	50%		
Gamble 3	High	71	50%	114	43.0
	Low	157	50%		
Gamble 4	High	57	50%	121.5	64.5
	Low	186	50%		
Gamble 5	High	43	50%	128.5	85.5
	Low	214	50%		
Gamble 6	High	7	50%	128.5	121.5
	Low	250	50%		

Note: The level of risk is given by the standard deviation of the payoffs.

gambles 2 to 5, both the risk (standard deviation) and expected value increase. Gamble 6 only increases in risk with respect to gamble 5, but not in expected value. Subjects did not see the calculated expected payoff or the standard deviations. We choose this procedure due to its simplicity and clarity. Subjects can easily understand the task, make the calculations of the expected payoffs, and identify the difference between the options (risk). This minimizes possible errors while making decisions.

The next method consists of the hypothetical job market (*HypoJob*) question by Barsky et al. (1997), used hereafter by BJKS and reformulated by Aarbu and Schroyen (2014):

"Imagine a situation where reasons beyond your control force you to change occupation. You can choose between two new jobs. Job 1 guarantees you the same income as your current income. Job 2 gives you a 50% chance of an income twice as high as your current income, but with a 50% chance it results in a reduction of your current income by one third. What is your immediate reaction? Would you choose Job 1 or Job 2?"

To elicit risk preferences when decisions are made for others, we reframed the question as follows:

"Imagine a person in a situation where reasons beyond his/her control force him/her to change occupation. He/She can choose between two new jobs. Job 1 guarantees the same income as his/her current income. Job 2 gives a 50% chance of an income twice as high as his/her current income, but with a 50% chance it results in a reduction of his/her current income by one third. What is your immediate reaction if you would have to give advice? Would you advise him/her to choose Job 1 or Job 2?"

After answering this question participants are presented with two new alternatives depending on their choice. If Job 1 was chosen, subjects then have to decide whether to keep Job 1 or a new version of Job 2 which gives 50% chance to double the income, but a 50% chance of reduction by 1/5, instead of 1/3. If Job 2 was selected, the alternatives are to keep Job 2 or to choose a new version of Job 2 where the possible income reduction increases from 1/3 to 1/2. Thus, this procedure allows us to classify individuals' risk preferences into 4 categories.

The third procedure consists of a hypothetical investment choice (*HypoInvest*). This has been utilized in a representative survey from Germany (SOEP) and is used by, among others, Dohmen et al. (2011), Leuermann and Roth (2012) and Aarbu and Schroyen (2014):

"Imagine you won 1 million kroner [3] in a lottery. Almost immediately after you collect the money, you receive the following financial

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offer from a bank, the conditions of which are as follows: There is the chance to double the money within two years. However, it is equally possible that you could lose half of the amount invested. What fraction of the 1 million kroner would you invest: 0, 200 000, 400 000, 600 000, 800 000, or 1 million?"

When the decision is on behalf of others we reframed the statement as follows:

"Imagine a person who has won 1 million kroner in a lottery. Almost immediately after this person collects the money, he/she receives the following financial offer from a bank, the conditions of which are as follows: There is the chance to double the money within two years. However, it is equally possible that he/she could lose half of the amount invested. Suppose that you are going to make the decision on behalf of this person. What fraction of the 1 million kroner would you invest on behalf of this person: 0, 200 000, 400 000, 600 000, 800 000, or 1 million?"

4. Results

In this section, we summarize the main findings from our three risk-taking elicitation methods: the Eckel and Grossman lottery choice is denoted *Lottery*. The hypothetical job market and investment choices are denoted *HypoJob* and *HypoInvest*, respectively. The lottery choices and the *HypoInvest* choices take the values 1, 2, 3, 4, 5 or 6 (for gambles 1 to 6 or investment level 1 to 6, respectively), and higher values correspond to higher risk. Likewise, the choices in *HypoJob* run from one to four and increase in risk. Decisions and choices regarding the subjects' own risk-taking are denoted OWN, while decisions and choices regarding risk-taking on behalf of others are denoted OPM.

Table 4 presents descriptive statistics and non-parametric tests for the three tasks under both OWN and OPM.[4] The upper part of the table (rows 2–7) presents the average decision for each task, both for the pooled data and by the order of decisions (OWN then OPM, or OPM then OWN). Column 5 presents Mann–Whitney U-tests for the difference between the two orders of decisions. Thus, this column shows whether the order in which subjects make decisions affect the decision. Moreover, as can be seen by the p-values presented in brackets in column 5, order seem to matter for some of the tasks and decisions. That is, a sensitivity for treatment order is observed for the *HypoJob* OPM decision, and the *HypoInvest* OWN decision. Focusing on the differences between OWN and OPM within each task (row 8 – 10), we find no order effects in the *Lottery* task, nor the *HypoJob* task. That is, the difference between OWN- and OPM lottery decisions are not affected by order of decision. However, decisions in the *HypoInvest* are sensitive for the decision order. Thus, for the subsequent analysis, order effects needs to be addressed and accounted for.

Focusing now on the lower part of Table 4, we see that there is no difference in decisions made with own money and others money for the *Lottery* task, neither for the pooled data, nor for the two different treatment orders. For the *HypoInvest* task we observe a significant negative difference for the order OWN, then OPM, suggesting a risky shift. However, the effect is not observed for the subjects playing under the reversed order. The only task where we observe a consistent difference between OWN and OPM is for the HypoJob task. Here, subjects advise others to take significantly less risk with their salary than what they would do with their own salary, irrespective of treatment order.[5]

We thus present our first result:

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[3] We have used (Norwegian) kroner to adapt the investment situation to the Norwegian context.

[4] We also run the standard t-test from which we obtain similar results.

[5] Importantly, these results add to previous findings indicating the existence of domain-specific differences in individual-level risk preferences and risk perceptions (see, e.g., Weber et al., 2002; Hanoch et al., 2006; Weller et al., 2015). Therefore, to predict individuals risk-taking when managing own versus

Table 4
Risk-taking with own and others money.

	OWN OPM	OPM OWN	Pooled	Difference
Lottery OWN	3.77 (1.68)	4.17 (1.71)	3.98 (1.70)	−0.40 [0.06]
Lottery OPM	3.81 (1.85)	3.95 (1.74)	3.88 (1.79)	−0.14 [0.67]
HypoJob OWN	2.31 (0.94)	2.43 (0.96)	2.37 (0.95)	−0.12 [0.41]
HypoJob OPM	2.01 (0.85)	2.29 (0.91)	2.16 (0.89)	−0.28 [0.03]
HypoInvest OWN	2.14 (1.19)	2.51 (1.28)	2.34 (1.25)	−0.37 [0.04]
HypoInvest OPM	2.37 (1.34)	2.42 (1.17)	2.39 (1.25)	−0.05 [0.50]
Lottery (OWN − OPM)	−0.04 (1.77)	0.22 (1.96)	0.09 (1.87)	−0.26 [0.18]
HypoJob (OWN − OPM)	0.30*** (1.05)	0.14** (0.80)	0.22*** (0.93)	0.16 [0.25]
HypoInvest (OWN − OPM)	−0.22** (0.99)	0.09 (0.91)	−0.06 (0.96)	−0.31 [0.01]
Observations	90	100	190	190

Notes: Table 4 summarizes the mean risk-taking in OWN and OPM for the three tasks. The three tasks: Lottery runs from 1 – 6, HypoJob runs from 1 – 4, and HypoInvest runs from 1 – 6. In all tasks a higher number is associated with higher risk. The second and third column present means by treatment order. Column four contains the pooled decisions, while the rightmost column shows the difference in decisions between the two treatment order and corresponding Mann-Whitney U-test p-values in brackets. The four last rows presents the difference between OWN and OPM for the three tasks, followed by number of observations. Standard deviation in parentheses. Wilcoxon signed rank test: * = p<0.05, ** = p<0.01, *** = p<0.001.

Result 1. *Decisions in the Lottery task with own money and choices in the HypoInvest with own money are not significantly different from the corresponding decisions and choices regarding other people's money. However, in HypoJob, subjects advise others to take significantly less risk with their salary than what they would do with their own salary.*

Even though we do not observe a significant difference when we compare averages for the lottery task, the distribution indicate that more people choose lotteries 5 and 6 in OWN, than in OPM.[6] However, the difference measured as proportion of people choosing lottery 5 or 6 in OWN and OPM is not statistically significant (0.51 (OWN) vs. 0.44 (OPM), Proportions Test, z = 1.336, p = 0.182). A similar difference is also observed when we look at the responses to the job question. Significantly more subjects report choosing the riskier job offer when it concerns themselves, than when the possible consequences are borne by someone else (0.42 (OWN) vs. 0.32 (OPM), Proportions Test, z = −2.018, p = 0.044). We do not find a similar high-risk difference in the hypothetical lottery task ((0.70 (OWN) vs. 0.72 (OPM), Proportions Test, z = −0.225, p = 0.822).

We have shown that the average risk-taking in OWN and OPM in the lottery task is almost the same. At the same time, we find that a large portion of subjects make different choices in OWN compared to OPM. That is, a large portion of subjects take higher risk with their own money, and lower risk with other people's money, or vice versa. In Fig. 1 we present a histogram of the difference in lottery choices between OWN and OPM. The histogram shows the difference between the lottery decision in OPM and the lottery decision in OWN for each individual. We see that 41% of the subjects make the same decision in OWN and OPM. We also see that 27.4% of the subjects take less risk with other people's money, whereas 31.6% of the subjects choose to take more risk with other people's money. The same pattern is found when we look at the two other tasks, presented in Table A.1 and Fig. A.1 in the Appendix. Both in *HypoJob* and in *HypoInvest* 63% of the subjects made the same decision in OWN and in OPM. Furthermore, 11% (26%) and 20% (17%) of the subjects increase (decrease) risk-taking with OPM in *HypoJob* and *HypoInvest*, respectively.

Now, a question is whether subjects are consistent in their risk-taking. In other words, are subjects consistent over tasks in

Table 5
Spearman's rank order correlation coefficients.

	OWN	OPM	Difference[a]
Lottery - HypoJob	0.159*	0.061	−0.026
Lottery - HypoInvest	0.198*	0.177*	0.117
HypoInvest- HypoJob	0.204*	0.253*	0.047

Note: *: p<0.05.
[a]Presents the Spearman's correlations for the difference in decisions (decision OWN minus decision in OPM) between tasks.

how risk-taking on behalf of others compares to risk-taking under OWN? We start by looking at correlation coefficients for decisions made in OWN and OPM for the different tasks. Table 5 shows that there is only a weak correlation between the lottery task, the job task and the hypothetical investment task both in OWN and in OPM. While this indicates that subjects who make low (high) risk choices in the lottery under OWN or OPM tend to make low (high) risk choices also in the job task and in the hypothetical lottery under OWN and OPM, the correlation coefficients are not large. This inconsistency in decision-making has also been found in several other studies comparing different elicitation methods. (see for ex., Dulleck et al., 2015; Crosetto and Filippin, 2016; Pedroni et al., 2017). We contribute to this literature by including in the discussion whether the inconsistency observed from individual risk-elicitation methods persists when decisions are not only made for themselves, but also on behalf of others. Our findings reveal that this might be the case. The correlation coefficients presented in the last column in Table 5 suggest that subjects who take less (more) risk with other people's money compared with own money in the lottery task are no more likely to do the same in the Job task or in the hypothetical lottery task. It should be noted that two of our hypothetical elicitation methods were not incentivized, which could explain the weak correlations. Also, it is important to note that *HypoInvest* is a mixed lottery involving losses, which might foster loss-aversion and therefore a different behavior from the observed in the other two tasks. This can be shown by looking at the lower skewness in the distribution of decisions for *HypoInvest* versus *HypoJob* and *Lottery* (see Fig. A.1 in the Appendix)

To investigate this further, we divide subjects into three types: those who take more risk in OPM, those who take less risk in OPM, and those who make the same choice in OWN and OPM within the three different tasks. Focusing first on own lottery decisions, we find that subjects who take less risk in OPM make significantly riskier decisions measured in terms of own lottery decisions, than those who take more risk in OPM (average choice of 4.846 versus 2.900; Mann–Whitney U-Test, z = 6.64, p <
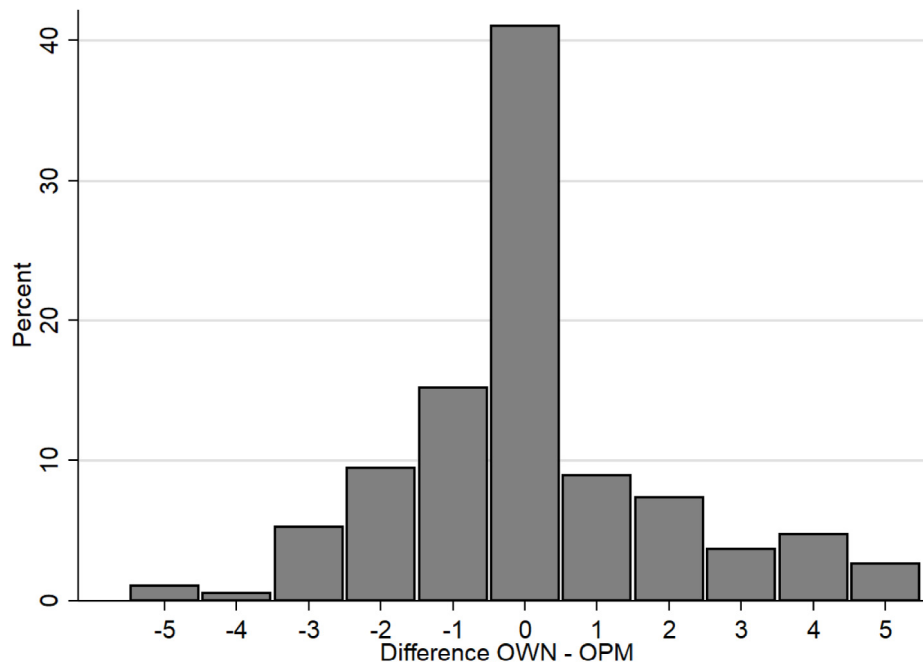
others money, it may be sufficient to observe their behavior in the domain of prediction interest. However, an interesting perspective that might open doors for further research is to examine the sources of risk-aversion in a particular domain, i.e, whether the observed risk-aversion when managing others' money in *HypoJob* is the result of an unrealistic perception of riskiness.

[6] The distributions are presented in Fig. A.1 in the Appendix.

Fig. 1. The difference in lottery choices between OWN and OPM. *Note*: The figure presents the difference between lottery choices in OWN and OPM. The lottery choices take the values 1, 2, 3, 4, 5 or 6 (for gambles 1 to 6). Thus, the difference between OWN and OPM runs from −5 to 5. A value of zero indicates same risk-taking with OWN and OPM, negative values indicate higher risk-taking with OPM than OWN, while positive values indicate lower risk-taking with OPM than OWN.

0.001). Table 6 presents the average risk-taking from lottery decisions with own and other people's money, as well as the differences between the own lottery decision and the decision made for someone else ordered by type of risk-taker (see Tables A.3, and A.4 in the Appendix for the *HypoJob* task and *HypoInvest* task). Thus, it seems that subjects who decrease risk with other people's money are less risk averse in terms of their own lottery decisions, compared to subjects who increase risk with other people's money.[7] We observe the same in *HypoJob* and *HypoInvest*.[8] Referring to the literature, we find that Füllbrunn and Luhan (2015) present similar results. While their design differs from ours in that decisions for others are made on behalf of a group of six "clients", they also find that money managers invest less for their clients, than for themselves (cautious shift). Moreover, they also find that low risk aversion is the main driver of the cautious shift.[9]

Finally, we simply count the subjects who are consistent over tasks with respect to less or more risk with other people's money. We find that 20% of all subjects make the same choice under OWN and OPM, while only 3% choose to either take more risk with OPM in all tasks, or less risk with OPM in all tasks. Thus,

77% of all subjects alternate between taking more risk, less risk or the same amount of risk with other people's money over the three tasks. This is strong evidence against the existence of a subject type that consistently takes less or more risk with other people's money. Supporting our findings, related studies comparing different individual-level risk elicitation methods also show that subjects do not consistently follow the same decision strategy across methods, when they decide for themselves (see, e.g., Dulleck et al., 2015; Crosetto and Filippin, 2016; Pedroni et al., 2017). Considering this evidence comparisons between our two treatments should be taken with caution. In addition, the fact that our two hypothetical tasks were not incentivized would suggest that they were more noise-affected than those from our incentivized lottery task. We see, however, that hypothetical choices follow a similar tendency compared with those that were incentivized.

Result 2. *In all tasks, a large portion of subjects make either riskier choices or less risky choices in OWN compared to what they do in OPM. However, subjects are not consistent across the three tasks.*

Now, consider what subjects believe others do. Following the lottery decision in the experiment, subjects were asked to state their beliefs about other participants' own risk preferences (*Belief OWN*), as well as their beliefs about the preferences of the other participants when deciding on behalf of others (*Belief OPM*).[10] In Table 7 we present the reported beliefs as well as differences between lottery decisions and beliefs. From the pooled data (column 4) we see that subjects believe that other participants take less risk with their own money (3.04), than with other people's money (3.68). Therefore, subjects expect that the participants in the experiment take more risk with other people's money than with their own money. The difference in beliefs is significant

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[7] The construction of the "types of risk-takers" is biased in the direction of less/more risk aversion with OPM, since, for instance, subjects who choose the riskiest alternative with own money can only take the same risk or less risk with other people's money. Alternatively, subjects who take no risk with their own money can only take the same risk or more risk with other people's money. However, similar results are found when we exclude corner decisions.

[8] Results of the Mann–Whitney U-Test for the job task: z = 5.40, p < 0.001; and for the hypothetical lottery: z = 4.76, p < 0.001.

[9] Our construction of risk types differ from that of Füllbrunn and Luhan (2015) and Füllbrunn and Luhan (2017). We look at whether subjects take less, more or equal risk with other people's money, compared to own money, while Füllbrunn and Luhan (2017) focus on whether subjects (own) risk-taking is above the median (own) risk-taking. If we follow Füllbrunn and Luhan (2015) in our construction of risk-types we also find results suggesting that subjects making a cautious shift are less risk averse (in terms of own lottery decisions), while subjects making a risky shift are more risk averse in terms of own lottery decisions (see Table A.2 in the Appendix).

[10] We asked subjects to state which lottery they believe others would choose when deciding for themselves (*Belief OWN*), as well as the lottery decision they believe others would choose when deciding for others (*Belief OPM*).

Table 6
Risk-taking with own and other people's money by type.

	Lottery OWN	Lottery OPM	Difference	# obs.
Cautious shift	4.85 (1.09)	2.40 (1.35)	2.44 (1.36)	52
Same risk	4.23 (1.82)	4.23 (1.82)	–	78
Risky shift	2.90 (1.41)	4.72 (1.25)	−1.82 (1.00)	60
OWN OPM				
Cautious shift	4.70 (0.93)	2.35 (1.37)	2.35 (1.19)	23
Same risk	3.88 (2.03)	3.88 (2.03)	–	32
Risky shift	3.06 (1.39)	4.71 (1.32)	−1.66 (0.84)	35
OPM OWN				
Cautious shift	4.97 (1.21)	2.45 (1.35)	2.52 (1.50)	29
Same risk	4.48 (1.64)	4.48 (1.64)	–	46
Risky shift	2.68 (1.44)	4.72 (1.17)	−2.04 (1.14)	25

Note: The table presents average risk-taking from lottery decisions in OWN and OPM ordered by subjects that take more risk (Risky shift), less risk (Cautious shift), or same risk with other people's money (Same risk). The upper part of the table shows the averages for the pooled data. The mid- and lower part of the table correspond to the order of decisions, with either OWN first or OPM first. Column four presents the difference between the two decisions. Standard deviation in parentheses.

(Wilcoxon signed-rank test, z = −5.05, p < 0.01). This result is at odds with observed behavior. Overall there is no difference in lottery decisions between OWN and OPM. However, when we simply ask subjects about their preferences, 59% claim to be less willing to take risks with others' money than with own money. This is significantly different from 50% (Proportion test p = 0.013). However, we should be cautious when interpreting the data, as we observe a significant difference in Belief OPM depending on treatment order.

In the lower part of Table 7 we compare the actual lottery choices with the beliefs about what others do. From *Lottery Own-Belief Own* we see that subjects believe that others take less risk than themselves (3.98 vs. 3.04). This result is consistent with the *risk-as-value* hypothesis proposed by Brown (1965), which states that people perceive themselves as being more risk-seeking than others. The difference Lottery OPM-Belief OPM indicate that this behavior persists when managing OPM (3.88 vs. 3.68, respectively). This difference, however, is not significant with a *p*-value of 0.09. Finally, we see that the difference Lottery OPM-Belief OWN is highly significant suggesting that when subjects actually make a lottery decision with OPM, they do not refer to their beliefs about what others do with their own money.

Result 3. *Subjects believe that people take more risk on behalf of others than on behalf of themselves. In addition, subjects perceived themselves as being more risk-seeking than others when managing both own and other people's money.*

Table 8 presents probit regressions for the difference in lottery decisions made with own and others money. The dependent variable is a dummy variable and take the value 1 if Lottery OWN > Lottery OPM. In Model 1 the independent variables are

Table 8
Probit regressions on differences between Lottery OWN and Lottery OPM.

Dependent variable: Lottery OWN > Lottery OPM	(1) Coef.	Std. Err.	(2) Coef.	Std. Err.
Order OPM–OWN	0.360	(0.213)	0.296	(0.235)
Male	−0.196	(0.210)	−0.520*	(0.227)
Age	−0.028	(0.026)	−0.036	(0.027)
Econ	0.443*	(0.214)	0.466*	(0.227)
Risk attitude	0.005	−0.044	−0.027	(0.048)
Lottery OWN > Belief OWN	0.830***	(0.225)	0.655**	(0.245)
Lottery OPM > Belief OPM	−0.708**	(0.226)	−0.820***	(0.256)
Job OWN > Job OPM	−0.023	(0.235)	−0.089	(0.251)
Invest OWN > Invest OPM	−0.168	(0.263)	−0.085	(0.283)
Gamble 5 or 6	–	–	1.154***	(0.240)
Intercept	−0.472	(0.684)	−0.485	(0.716)
No of observations	190		190	
Pseudo R2	0.109		0.210	

Note: The table presents probit regressions for the difference in Lottery OWN and Lottery OPM. The dependent variable is a dummy variable equal to one if Lottery OWN > Lottery OPM. The independent variables are the dummy variable Order OPM - OWN, equal to one if the OPM decision was first, Male equal to one if the subjects was a man, and Econ, equal to one if the subject is studying economics or business. We also include a variable measuring Age. The variable Risk attitude presents selfreported propensity to take risk (ranges from 0 – 10, with higher numbers indicating a propensity to take on risk). Lottery OWN > Belief OWN is a dummy variable equal to one if participants believes that other's are more risk averse with their own money, relative to themselves. Similarly, the dummy variable Lottery OPM > Belief OPM equals one if participants believes that other's are more riskaverse with other's money, than what they are themselves. We also include the dummy variable Difference Job (OWN - OPM) and Difference Invest (OWN - OPM), which are both equal to 1 if the OWN decisions is greater than the OPM decisions. Finally, we have the dummy variable Gamble 5 or 6, which equals one if the participant chose gamble 5 or 6 in Lottery OWN. * = p<0.05, ** = p<0.01, *** = p<0.001. Standard errors are clustered at the individual level.

the dummy variable *Order OPM - OWN*, indicating if the OPM decision was first. We also include the control variables *Age*, *Male*, and *Econ*, were the latter variable is equal to one if the subject is studying economics or business. *Risk attitude* presents selfreported propensity to take risk (ranges from 0–10, with higher numbers indicating a propensity to take on risk). We are also interested in whether beliefs about the decisions of other's could affect differences in lottery decisions. Thus, we include the dummy variables *Lottery OWN – Belief OWN* and *Lottery OPM – Belief OPM*. Both variables equal one if participants believes that other's are more risk averse with own/other's money, relative to themselves. We also include the dummy variable *Difference Job (OWN - OPM)* and *Difference Invest (OWN - OPM)*, which are both equal to 1 if the OWN decisions are greater than the OPM decisions. Finally, in model 2, we include the dummy variable *Gamble 5 or 6*, which equals one if the participant chose gamble 5 or 6 in Lottery OWN.

First, from the coefficients of *Order OPM–OWN* in Model 1 we see that the difference in lottery decisions between OWN and OPM is not affected by the order of these decisions (p = 0.09). This is consistent with the findings from the non-parametric test

Table 7
Lottery decisions and beliefs.

	OWN OPM (obs. = 90)	OPM OWM (obs. = 100)	Pooled (190)	Difference [p-value]
Belief OWN	2.91 (1.80)	3.15 (1.88)	3.04 (1.84)	−0.24 [0.36]
Belief OPM	4.16 (1.90)	3.25 (1.91)	3.68 (1.95)	0.91 [<0.01]
Lottery OWN - Belief OWN	0.86 (1.91)***	1.02 (2.00)***	0.94 (1.96)***	−0.16 [0.73]
Lottery OPM – Belief OPM	−0.34 (2.33)	0.70 (2.35)**	0.21 (2.40)	−1.04 [<0.01]
Lottery OPM - Belief OWN	0.91 (2.75)**	0.80 (2.48)***	0.85 (2.60)***	0.11 [0.72]

Note: The table presents average beliefs (standard deviation) about which lottery others would choose when deciding for themselves (Belief OWN), and the lottery decision subjects believe others would choose when deciding for others (Belief OPM). The lower part of the table presents the differences between actual lottery choices (OWN and OPM) and beliefs about which lottery others would choose when deciding for themselves and others, in addition to corresponding Wilcoxon signed rank tests for whether these differences equals zero. * = p<0.05, ** = p<0.01, *** = p<0.001. Column five compare column two and three using the Mann-Whitney U-test (p-value in brackets).

presented in row 8–10 in Table 4. Further, the variable identifying subjects studying economics or business is positive and significant, indicating that these subjects are more likely to take less risk with other people's money compared to what they do with own money. Also, neither sex, age, nor risk attitude affect the likelihood of choosing more risk on behalf of own money. The same is true for the dummies representing the difference between OWN and OPM decisions in the Job task and the hypothetical investment task. Therefore, whether a participant makes a cautious shift for the Job task or the hypothetical investment task, does not affect the likelihood of making a cautious shift for the lottery gamble task. This finding relates to the literature on inconsistencies in individual decisions between different risk-elicitation methods, in that inconsistencies also persist for the difference between decisions made for themselves and other's using different elicitation methods (Dulleck et al., 2015; Crosetto and Filippin, 2016; Pedroni et al., 2017).

However, the variables measuring beliefs can explain differences in lottery decisions made with own and others money. The variable *Lottery OPM > Belief OPM* is negative and significant. This indicates that the likelihood of observing a cautious shift, in the sense of Lottery OWN being larger than Lottery OPM, is smaller when subjects believe that other's would choose a less risky lottery gamble when deciding for others, relative to the choice one makes on behalf of other's. Moreover, the variable *Lottery OWN > Belief OWN* is positive and significant, indicating that the likelihood of observing that Lottery OWN is larger than Lottery OPM, increases when subjects believe that other's would choose a less risky lottery gamble when deciding for themselves, relative to the lottery gamble participants choose themselves. To sum up, if participants believe that others take less risk with own money than themselves, participants are also more likely to take less risk with other's money. And, if participants believe that others take less risk with other's money, compared to themselves, participants are more inclined to take less risk with other's money.

Finally, in model 2, we look at how preferences for the less risk averse lotteries affect whether participants chose less risk when deciding for others. We do this by the dummy variable *Gamble 5 or 6*, which equals one if the participant chose gamble 5 or 6 in Lottery OWN. From the coefficient we see that subjects choosing the more risky lotteries when deciding for themselves, are more likely to take less risk when deciding for others. This result is in line with that of Füllbrunn and Luhan (2015), who find that subjects with low risk aversion are the main driver of the cautious shift observed in their experiment.

5. Conclusion

We use three different and well-established elicitation methods in order to study how people take risk on behalf of others. First we employ the Eckel and Grossman's (2002) gamble to elicit actual risk-taking behavior on behalf of own and others' money. Then we compare this with two hypothetical measures, the labor market choice by Barsky et al. (1997) and the investment choice used in the SOEP survey (see Dohmen et al., 2011). We also elicit beliefs about how others take risk with own and other people's money.

Overall we find only a weak tendency of lower risk-taking when decisions affect others compared with decisions that affect oneself. From the Eckel and Grossman framework we find that the averages are not significantly different, but there are significantly fewer subjects taking higher risk with other's money compared with own money. From the Job task, risk-taking is significantly lower when the choice involves another person; and from the investment choice, we find no significant differences between

Table A.1
Proportion of subjects who take more, less, or the same risk in OWN and OPM.

	Lottery	HypoJob	HypoInvest
Decrease risk in OPM	27.37%	25.79%	16.84%
Same risk	41.05%	63.16%	62.63%
Increase risk in OPM	31.58%	11.05%	20.53%

Table A.2
Risk-taking by risk-taker type (with respect to the median).

	Pooled	High risk	Low risk
Lottery OWN	3.98 (1.70)	5.41 (0.49)	2.52 (1.18)
Lottery OPM	3.88 (1.79)	4.41 (1.73)	3.35 (1.70)
Difference (Lottery OWN – Lottery OPM)[a]	0.09 (1.87)	1.00*** (1.70)	0.83*** (1.56)
Number of observations	190	96	94

Note: High risk: Lottery OWN ≥ Median (Lottery OWN), Low risk: Lottery OWN < Median (Lottery OWN). * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.
[a]Wilcoxon signed rank test.

managing own and other's money. In line with the *risk-as-value* hypothesis (Brown, 1965) we find that subjects perceive themselves as being more risk-seeking than others, and that others take less risk with their own money than with other people's money.

Our study complements a relatively recent line of research investigating self-other discrepancies in risk preferences. Although the *averages* indicate (like other studies) that people make quite similar decisions on behalf of others as on behalf of themselves, the analysis indicates that people act differently when taking risk for others. The majority of the subjects made different choices with others' money compared to own money. However, these decisions were not consistent over the different decision tasks. A large majority of subjects alternates between taking more risk, less risk or the same amount of risk with other people's money compared to own money. This could simply indicate that people act randomly, i.e. they minimize their effort when making risk decisions on behalf of others. Since decisions on behalf of others were not incentivized, random behavior is also in line with standard economic theory. That, said, our results also indicate that risk-taking on behalf of others can be domain-specific, and that beliefs about the others' risk-taking are at odds with actual investment behavior on behalf of others. Hence, the source of risk might be relevant when decisions concerns others versus oneself.

Appendix

We here present a script of the instructions from the experiment. The main instructions appeared "on screen" only, thus the instructions below only show the text (translated from Norwegian) presented to the participant. Translated screen shots are available on request.

Instructions for the experiment

Welcome to our experiment. The experiment will last approx. 30 min.

During the experiment you will be able to earn money that will be paid out in cash anonymously once the experiment is over. The instructions will be given on the screen. If you have any questions on the instructions, please raise your hand and we will come over to you. It is not allowed to talk or communicate with the other participants during the experiment.

● **Instructions part 1**

In this part of the experiment your task consists of making a decision on behalf of another participant of the experiment. This participant is located in the room but you will not know who this person is, neither during nor after the experiment. This

Table A.3
Risk-taking with own and other people's money by type: HypoJob.

	HypoJob OWN	HypoJob OPM	Difference	# obs.
Cautious shift	3.08 (0.79)	1.65 (0.60)	1.43 (0.68)	49
Same risk	2.21 (0.89)	2.21 (0.89)	–	120
Risky shift	1.67 (0.66)	3.05 (0.74)	1.38 (0.74)	21
OWN OPM				
Cautious shift	3.03 (0.78)	1.55 (0.51)	1.48 (0.73)	29
Same risk	2.04 (0.84)	2.04 (0.84)	–	49
Risky shift	1.67 (0.65)	3.00 (0.74)	−1.33 (0.76)	12
OPM OWN				
Cautious shift	3.15 (0.81)	1.80 (0.70)	1.35 (0.58)	20
Same risk	2.32 (0.91)	2.32 (0.91)	–	71
Risky shift	1.67 (0.71)	3.11 (0.78)	−1.44 (0.70)	9

Note: The table presents average risk-taking from HypoJob decisions in OWN and OPM ordered by subjects that take more risk (Risky shift), less risk (Cautious shift), or same risk with other people's money (Same risk). The upper part of the table shows the averages for the pooled data. The mid- and lower part of the table correspond to the order of decisions, with either OWN first or OPM first. Column four presents the difference between the two decisions. Standard deviation in parentheses. The sample size is 190 observations.

Table A.4
Risk-taking with own and other people's money by type: HypoInvest.

	HypoInvest OWN	HypoInvest OPM	Difference	# obs.
Cautious shift	3.38 (1.24)	2.06 (1.01)	1.31 (0.90)	32
Same risk	2.20 (1.19)	2.20 (1.19)	–	119
Risky shift	1.90 (0.97)	3.26 (1.25)	1.36 (0.78)	39
OWN OPM				
Cautious shift	3.25 (1.06)	1.92 (0.90)	1.33 (0.87)	12
Same risk	1.98 (1.17)	1.98 (1.17)	–	51
Risky shift	1.96 (1.02)	3.3 (1.35)	−1.33 (0.73)	27
OPM OWN				
Cautious shift	3.45 (1.36)	2.15 (1.09)	1.30 (0.91)	20
Same risk	2.37 (1.18)	2.37 (1.18)	–	68
Risky shift	1.75 (0.87)	3.17 (1.03)	−1.42 (0.88)	12

Note: The tables above presents average risk-taking from HypoJob (left side) and HypoInvest (right side) decisions in OWN and OPM ordered by subjects that take more risk (Risky shift), less risk (Cautious shift), or same risk with other people's money (Same risk). The upper part of the table shows the averages for the pooled data. The mid- and lower part of the table correspond to the order of decisions, with either OWN first or OPM first. Column four presents the difference between the two decisions. The sample size is 190 observations.

participant will not know your identity either. Your decision in this part of the experiment will affect the other participant's payoff, but it will NOT affect yours. In part 2 of the experiment you will have the opportunity to make money.
Information about the gambles.

Your task consists of selecting one of the six possible gambles on behalf of the other participant. Each gamble has two possible outcomes, either low or high. The probabilities for the low outcome are the same as for the high outcome. This means that both outcomes have a probability to occur of 50%. For Gamble 1 the low and high outcomes pay the same amount, 100 NOK to the other participant; Gamble 2 pays 86 NOK to the other participant if the low outcome occurs. If the high outcome occurs, it will pay 129 NOK to the other participant, and so forth. After you have made your choice and the computer estimates the outcome, you and the other participant will be informed about the result.

● **Decision.**

Now you are going to make a decision on behalf of the other participant.

Please select a gamble on behalf of the other participant.

● **Follow-up questions**

When the other participants made a decision on behalf of another participant,

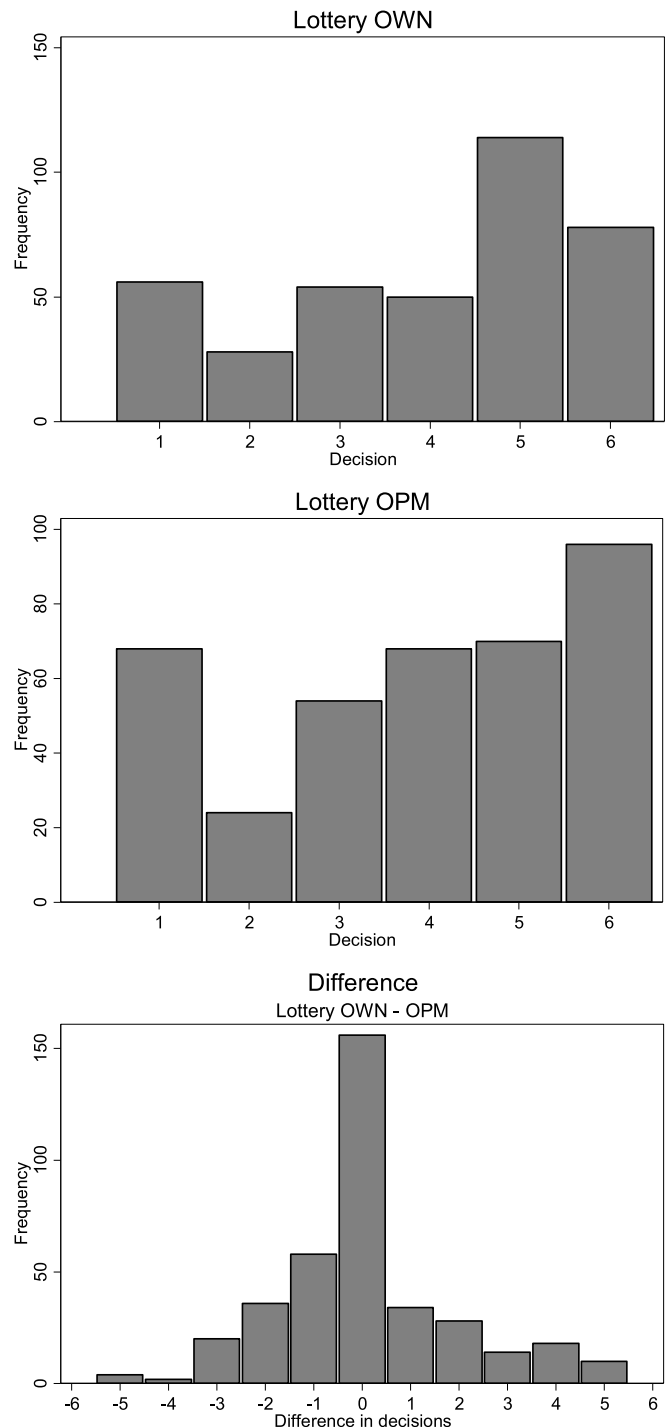which gamble do you think the majority chose?

Fig. A.1. Distribution of decisions for the Lottery, HypoJob, and HypoInvest. *Note*: The lottery choices take the values 1, 2, 3, 4, 5 or 6 (for gambles 1 to 6). Thus, the difference between OWN and OPM runs from −5 to 5. The same procedure is used for the difference between decisions in HypoInvest and HypoJob. A value of zero indicates same risk-taking with OWN and OPM, negative values indicate higher risk-taking with OPM than OWN, while positive values indicate lower risk-taking with OPM than OWN.

We now ask you to put yourself in the following hypothetical situation. We are interested in your immediate reaction and therefore there is not a correct or incorrect answer.

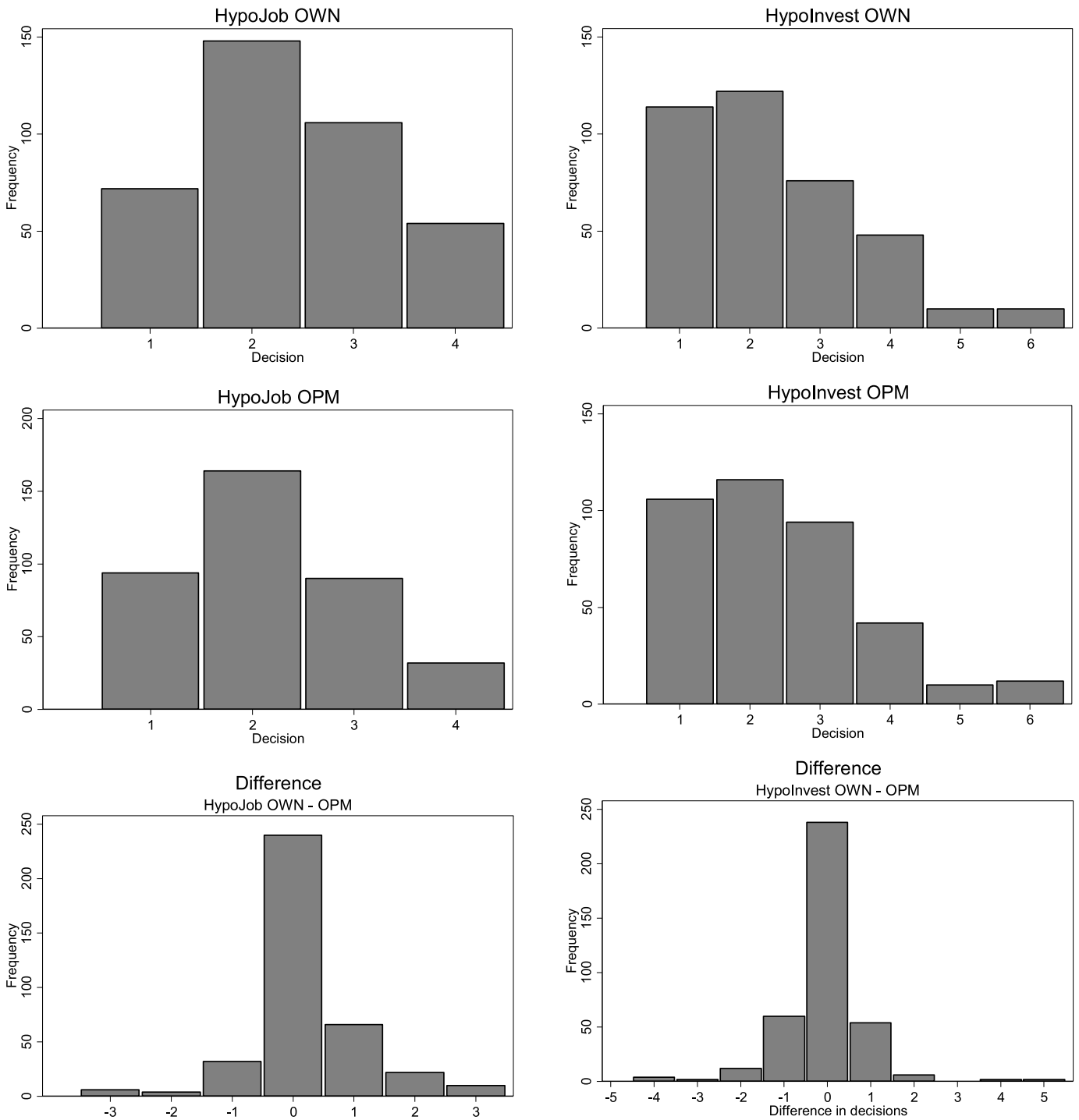Your answer will NOT affect your payoffs.

Fig. A.1. (*continued*).

Fig. A.1. (*continued*).

Imagine a person in a situation where reasons beyond his/her control force him/her to change occupation. He/She can choose between two new jobs. Job 1 guarantees the same income as his/her current income. Job 2 gives a 50% chance of an income twice as high as his/her current income, but with a 50% chance it results in a reduction of his/her current income by one third. What is your immediate reaction if you would have to give advice? Would you advise him/her to choose Job 1 or Job 2?

(After answering this question, participants are presented with two new alternatives depending on their choice. If Job 1 was

chosen, subjects then have to decide whether to keep Job 1 or a new version of Job 2 which gives 50% chance to double the income, but a 50% chance of reduction by 1/5, instead of 1/3. If Job 2 was selected, the alternatives are to keep Job 2 or to choose a new version of Job 2 where the possible income reduction increases from 1/3 to 1/2.)

We ask you again to put yourself in the following hypothetical situation. We are interested in your immediate reaction and therefore there is not a correct or incorrect answer.

Your answer will <u>NOT</u> affect your payoffs.

Imagine a person who has won 1 million kroner in a lottery. Almost immediately after this person collects the money, he/she receives the following financial offer from a bank, the conditions of which are as follows: There is the chance to double the money within two years. However, it is equally possible that he/she could lose half of the amount invested. Suppose that you are going to make the decision on behalf of this person. What fraction of the 1 million kroner would you invest on behalf of this person: 0, 200 000, 400 000, 600 000, 800 000, or 1 million?

- **Instructions part 2**

Now starts part 2 of the experiment. You will be informed about the result of part 1 of the experiment after part 2 is over. In this part of the experiment your task consists of selecting a gamble that YOU would like to play. The result of this part of the experiment affects your payoff, but it does not affect the payoff of the other participant.

Information about the gambles.

Your task consists of selecting one of the six possible gambles. Each gamble has two possible outcomes, either low or high. The probabilities for the low outcome are the same as for the high outcome. This means that both outcomes have a probability to occur of 50%. For Gamble 1 the low and high outcomes pay the same amount, 100 NOK; Gamble 2 pays 86 NOK if the low outcome occurs. If the high outcome occurs, it will pay 129 NOK, and so forth. After you have made your choice and the computer estimates the outcome, you will be informed about the result.

- **Decision.**

Now you are going to make your choice.

Please select the gamble that you want to play.

- **Follow-up questions Part 2**

When the other participants made a decision on behalf of themselves,

which gamble do you think the majority chose?

We now ask you to put yourself in the following hypothetical situation. We are interested in your immediate reaction and therefore there is not a correct or incorrect answer.

Your answer will <u>NOT</u> affect your payoffs.

Imagine a situation where reasons beyond your control force you to change occupation. You can choose between two new jobs. Job 1 guarantees you the same income as your current income. Job 2 gives you a 50% chance of an income twice as high as your current income, but with a 50% chance it results in a reduction of your current income by one third. What is your immediate reaction? Would you choose Job 1 or Job 2?

(After answering this question, participants are presented with two new alternatives depending on their choice. If Job 1 was chosen, subjects then have to decide whether to keep Job 1 or a new version of Job 2 which gives 50% chance to double the income, but a 50% chance of reduction by 1/5, instead of 1/3. If Job 2 was selected, the alternatives are to keep Job 2 or to choose a new version of Job 2 where the possible income reduction increases from 1/3 to 1/2.)

We ask you again to put yourself in the following hypothetical situation. We are interested in your immediate reaction and therefore there is not a correct or incorrect answer.

Your answer will <u>NOT</u> affect your payoffs.

Imagine you won 1 million kroner in a lottery. Almost immediately after you collect the money, you receive the following financial offer from a bank, the conditions of which are as follows: There is the chance to double the money within two years. However, it is equally possible that you could lose half of the amount invested. What fraction of the 1 million kroner would you invest: 0, 200 000, 400 000, 600 000, 800 000, or 1 million?

Finally, we ask you to answer the following question.

Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?

Please tick a box on the scale, where the value 0 means: 'unwilling to take risks' and the value 10 means: 'fully prepared to take risk'.

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