



# Risk-taking in social settings: Group and peer effects



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## ABSTRACT

We investigate experimentally the effect of consultation (unincentivized advice) on choices under risk in an incentivized investment task. We compare consultation to two benchmark treatments: one with isolated individual choices, and a second with group choice after communication. Our benchmark treatments replicate findings that groups take more risk than individuals in the investment task; content analysis of group discussions reveals that higher risk-taking in groups is positively correlated with mentions of expected value. In our consultation treatments, we find evidence of peer effects: decisions within the peer group are significantly correlated. However, average risk-taking after consultation is not significantly different from isolated individual choices. We also find that risk-taking after consultation is not affected by adding a feedback stage in which subjects see the choices of their consultation peers.

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## 1. Introduction

The standard economic approach to the analysis of choice under risk emphasizes the role of individual risk preferences. In deciding how much to invest in a risky asset, individuals weigh up the costs and benefits referring to these preferences. By contrast, in many important real-world settings individuals do not take choices in isolation, and the social settings within which choices are made may influence behavior. For example, individual choices may be swayed by the opinions and decisions of others. In this paper we investigate how a common social setting, consultation with a group of peers, affects choices under risk in the laboratory.

There is abundant field evidence that people's choices are often influenced by their peers.<sup>1</sup> While field studies can provide compelling evidence of correlated behavior within peer groups, identifying these as peer effects is complicated by

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<sup>1</sup> Peer effects have been found in a number of settings with choices under risk or uncertainty, such as investment decisions (Kelly and O'Grada, 2000; Hong et al., 2004; Brown et al., 2008; Bursztyn et al., 2012), entrepreneurship decisions (Nanda and Sørensen, 2010; Lerner and Malmendier, 2011; Falck et al., 2012), credit-funded consumption decisions (Sotiropoulos and D'astous, 2012), criminal activity (Fergusson et al., 2002; Bayer et al., 2009), and drug and alcohol use (Fergusson et al., 2002; Duncan et al., 2005; Powell et al., 2005; Lundborg, 2006; Clark and Lohéac, 2007). For a broad review of social influence mechanisms, see Cialdini and Goldstein (2004).

confounding factors (Manski, 1993). Moreover, it is difficult to assess the influence of peer effects from field data, as naturally occurring control treatments where peer effects are absent but other variables are held constant are typically not available.

For these reasons we use a controlled laboratory experiment, described in Section 3, to investigate the effect of social settings on investment decisions over multiple periods. Our experiment has two benchmark treatments that replicate Sutter's (2009) experiment on decision-making in groups. In one treatment, decisions are made by isolated individuals without any communication with peers. In the other treatment, decisions are made by groups whose members can communicate and have to agree on a single group decision via electronic chat. In our two *consultation* treatments, subjects are also allowed to freely communicate with their peer group, as in the benchmark treatment with groups, before making a decision. However, each subject's earnings depend only on his or her own choices and not on the choices of others. We use this framework because direct communication between peers is an important feature of many settings where peers may influence one another.

Our focus on consultation contrasts with related laboratory studies of peer effects, discussed in Section 2, in which subjects are informed of each other's choices and may be influenced by these, but there is no direct communication between subjects (for example, Yechiam et al., 2008; Cooper and Rege, 2011; Lahno and Serra-Garcia, 2012). We do, however, control for the additional influence of seeing others' choices by varying the degree of feedback we offer to subjects across the two consultation treatments. In one treatment we ensure that subjects are fully informed of the choices of others in their group while in the other treatment they do not receive such feedback.

Our experiment is also related to experiments where subjects give and take advice (also discussed in the next section). However, our framework departs from these studies in that we do not incentivize giving advice. Instead, the only motivations for our subjects to give or take advice are intrinsic motivations independent of financial consequences (as in many examples of peer advice in everyday life). Also, our subjects face the same task at the same time as their peers, whereas in other experiments on advice the experimental design induces differences between the experience and/or expertise of advice givers and takers.

In Section 4 we report our results. The benchmark treatments replicate previous findings of higher risk-taking by groups relative to isolated individuals (Sutter, 2007, 2009). Content analysis of the messages sent by group members shows that higher levels of risk taking are associated with messages referring to expected value maximization. We also find some evidence that risk-taking is higher in consultation groups where expected values are mentioned, although this effect is only marginally significant. Furthermore, we find that consultation does not increase average risk-taking beyond that observed among isolated individuals. Thus, simply providing direct communication between peers does not result in the higher risk-taking observed when decisions are made by groups. We do, however, find evidence of peer effects in our consultation treatments. Within consultation groups, variability in choices is significantly lower than the variability in choices between individuals from different groups; this result holds whether we explicitly inform subjects of their peers' previous round choices or not. More generally, we do not find any evidence that informing subjects of the previous round choices and earnings in their peer group influences risk-taking when subjects already have the ability to consult with these peers through electronic chat.

## 2. Related literature

Compared to the long history of empirical and field studies of peer effects, the use of laboratory experiments to identify peer effects is a recent development. Experiments have shown the existence of peer effects in labor productivity experiments (Falk and Ichino, 2006; Eriksson et al., 2009; Bellemare et al., 2010), dictator games (Cason and Mui, 1998; Bicchieri and Xiao, 2009; Krupka and Weber, 2013), gift-exchange games (Thöni and Gächter, 2012; Gächter et al., 2012, 2013) and investment games (Mittone and Ploner, 2011).

Peer effects have also been shown to affect individual choice under risk. Yechiam et al. (2008) let subjects make binary choices under risk on a computer while looking at a real-time broadcast from another subject's choice screen, thus exposing subjects to each other's choices and outcomes. The authors report that mutual observation in pairs leads to higher risk-taking, but this effect is not observed when only one of the subjects in the pair observes the other. Cooper and Rege (2011) test for peer effects in a series of binary choices under risk and ambiguity, using feedback about other subjects' choices as the channel for peer influence. They find that subjects are significantly more likely to change their response if it deviates from the majority choice of peers. Cooper and Rege also report that the peer influences of the majority opinion spills over into other gambles: if subjects observe the majority of their peers choosing the risky option in one choice, this makes them more likely to choose the risky option in other choices. Finally, the authors show that the peer effects are consistent with a model of 'social regret', the idea that obtaining a poor outcome from a gamble does not hurt as much if others have chosen the same gamble. Most recently, Lahno and Serra-Garcia (2012) also test for peer effects in binary lottery choices and find substantial evidence of peer effects, though responses to the decisions of peers depend strongly on whether peer decisions were voluntary or randomly imposed by the experimenter. Our work differs from these three studies in two important ways. First, the vehicle for peer effects in these three studies is the observation of others' decisions, whereas in our experiment it is direct communication among peers. Second, whereas these three studies analyze binary lottery choices, we use a different task that is well-suited to analyzing the level of risk-taking and has been used in previous experimental studies of group decisions.

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