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Reward the lucky? An experimental investigation of the impact of agency and luck on bonuses

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ABSTRACT

We examine the impact of agency and luck on bonuses in a two player, two stage controlled laboratory experiment. In the first stage, Player A makes an investment decision on behalf of Player B. In the second stage, Player B makes a dictator allocation for each possible outcome from the investment. We compare dictator giving (bonuses) across outcomes and with a control treatment in which the stage 1 outcomes are determined randomly. We do not find that luck is rewarded with higher bonuses. However, we do find a general tendency to respond to agency with reduced bonuses and, in particular, a significant tendency to reduce bonuses to agents who are unlucky. Additionally, we find that those who are more risk tolerant are less likely to give no bonus under agency but not in the control.

1. Introduction

Luck is a significant component in determining the ultimate outcome in many principal-agent relationships. More specifically, in many instances, compensation for good outcomes is partly a reward for being lucky, and withheld compensation following poor outcomes is partly a penalty for being unlucky. However, studies identifying the role of luck in determining rewards are difficult to conduct because incomplete information and psychological biases complicate efforts to separate the effects that skill and luck each have on outcomes (Camerer & Malmendier, 2007). To address this problem, we use a controlled laboratory experiment to test the behavioral propensity to reward luck, absent the effects of skill and effort.[1]

The literature on executive compensation provides an example of the extent to which luck affects compensation and debate over whether anything should be done about it. Authors such as Bertrand and Mullainathan (2001) find that CEO

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[1] More precisely, our experiment isolates the joint effect of intentions (Rabin, 1993) and luck by comparing an environment in which an agent must choose whether the principal's money is invested in a risky asset to one in which the principal's outcome is determined entirely randomly.

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compensation is substantially afected by luck. Moreover, there is dissent as to whether good and bad luck are rewarde or not rewarded with similar intensity—Leone, Wu, and Zimmerman (2006) report that CEO cash compensation is twice as sensitive to negative as to postive stock returns, while Garvey and Milbourn (2006), and Shaw and Zhang (2010) find that compensation is more sensitive to positive stock returns. Finally, Brookman and Thistle (2013) find that luck does not affect compensation.[2]

Luck may affect compensation when compensation is provided by rank order tournaments in which high wages/salaries, bonuses, and/or promotions are given to the winners as prizes for winning the tournament.[3] In the model of Lazear and Rosen (1981), employee output (which determines rank in the tournament) is determined by the sum of effort and luck, and this is the channel by which luck affects compensation.

In our experiment, we study the effects of luck by removing the influence of skill and effort, and examining principals' preferences for rewarding the luck of their agents. We focus on the tendency for principals to provide or withhold bonuses based on the luck of the agent (determined by the realization of a random draw).[4]

In addition to the large literature on luck and compensation, our paper builds on a growing literature about people taking risk on behalf of others.[5] Previous experimental research on financial advising examines how advisors make investment decisions on behalf of or predict the risk preferences of others (Eckel & Grossman, 2002, 2008). More recently, research in this area has emphasized how risk-taking is affected by responsibility (Charness & Jackson, 2009) and group decision-making (Harrison, Lau, Rutström, & Tarazona-Gómez, 2013; Masclet, Colombier, Denant-Boemont, & Lohéac, 2009), as well as understanding fairness issues (Bolton, Brandts, & Ockenfels, 2005; Cappelen, Konow, Sørensen, & Tungodden, 2013).[6] As far as how behavior changes when others are affected by risky decisions, some report that risk-taking is similar (Brennan, Gonzalez, Gueth, & Levati, 2008; Humphrey & Renner, 2011), while others find that it increases (Chakravarty, Harrison, Haruvey, & Rutström, 2011; Sutter, 2009) or decreases (Charness & Jackson, 2009; Pahlke, Strasser, & Vieider, 2015).

Füllbrunn and Luhan (2015) find that behavior is driven in part by own financial incentives and in part by social preferences. Further, decisions for others tend to move toward the 'perceived average' risk preference in the population. Similarly, Andersson, Holm, Tyran, and Wengstrom (2013) find that advisors predominantly respond to their own incentives, but that social preferences mitigate the impact. Pollmann, Potters, and Trautmann (2014) examine the impact of potential bonuses on the behavior of student subjects serving as financial advisors. They find that when bonuses are decided after the realization of an investment's outcome, risk-taking for others is similar to risk-taking for themselves. However, when the bonuses are decided before the payoff from the investment is known, the advisors are more risk averse for others than for themselves.

The previous literature typically does not address the next-step in the social interaction: how the one *affected* by an agent's (advisor's) risky decision responds to the decision made, as well as the resulting outcome. Our focus is answering this question.[7] The closest study to ours is König-Kersting, Pollman, and Trautmann (2016), who examine outcome bias in the evaluation of investor decisions using the data from Pollmann et al. (2014). They find that when bonuses are determined before the investment outcome is known, there is no difference across potential outcomes. However, when bonuses are determined after the investment's outcome is known, rewards are significantly higher for favorable outcomes than for unfavorable outcomes. However, in their design the 'before' bonus decision could reasonably be based on expected earnings while the 'after' decision is based on actual earnings. We address this issue using a treatment without agency to control for differences in wealth.

In our experiment, agents choose between investing the principal's money in a safe asset and investing it in a risky asset. Principals then choose how to divide some additional money between themselves and their agent. The allocation decisions are contingent on the investment outcomes, allowing us to identify the extent to which agents are rewarded for the good/bad luck associated with the investment outcomes. To examine the impact of agency while controlling for any wealth effects associated with the investment outcomes obtained, we have a second set of subjects (in a control treatment) participate in the same experiment, except that the outcome of the investment stage is fully random. That is, agents do not make any investment decisions; the investment stage payoffs are just determined randomly. Comparing the allocations to agents (across treatments, while holding investment outcomes constant) identifies the propensity to reward good or bad luck.

We do not find evidence that good luck is rewarded. We do, however, find a weakly significant tendency for agents to receive smaller bonuses. This happens because agents whose decisions result in neutral or positive outcomes for their principals are not significantly rewarded in the allocation stage (compared to the control treatment). However, agents whose

[2] Additionally, Bertrand and Mullainathan (2001) argue that CEO's are compensated for being lucky as they have gained some control over the pay setting process and use this to reward themselves favorably. However, Hoffmann and Pfeil (2010) show that rewarding good luck and not rewarding bad luck is a necessary component of optimal behavior in a dynamic model.

[3] See papers such as Gibbons (1998), Lazear (1999), and Prendergast (1999) for overviews of using rank order tournaments as compensation mechanisms.

[4] Previous research has examined other aspects of luck, such as attributing poverty to bad luck (Rey-Biel, Sheremeta, & Uler, 2011) or the influence of non-observable effort on effort and wages (Rubin & Sheremeta, 2016).

[5] For a recent review on the interaction between risk and social preferences, see Trautmann and Vieider (2012).

[6] Related to this, belief in luck and personal luckiness are established individual characteristics (Thompson & Prendergast, 2013, and citations therein) that impact confidence and risky behavior (Darke & Freedman, 1997).

[7] Our paper also relates to previous research on the relationship between dictator game behavior and the prior actions of recipients. Such papers include Ruffle (1998), and Oxoby and Spraggon (2008), where recipients determine the size of the surplus by completing skill-testing quizzes. A key difference between these papers and ours though is that in our experiment, the first stage outcomes do not depend on the skill and/or effort of recipients. Our first stage outcomes depend only on luck.