Risk exposure, pay inequality, and leadership effectiveness: Experimental evidence*

Aurelie Dariel‡ Nikos Nikiforakis§ Simon Siegenthaler¶

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Abstract

We explore the interplay of pay inequality, risk exposure, and leaders' ability to coordinate teams. We model team production as a coordination game where leaders set an example and team members face strategic uncertainty about others' willingness to follow the example. Using a theoretical framework, we predict that increasing pay inequality between leaders and team members undermines the leader's ability to coordinate teams, whereas increasing the leader's risk exposure increases leadership effectiveness. We confirm these hypotheses in a large online experiment, that is, variation in the leaders' incentives critically affects team members' willingness to follow the leader. Team members who are risk-averse and believe others are inequality-averse respond most to the treatment differences. In a separate lab experiment, we show the findings persist in larger teams and with higher financial incentives. Overall, we argue that risk exposure and its interplay with pay inequality is an important albeit often overlooked factor contributing to effective leadership.

Keywords: Teams, Leadership, Inequality, Strategic Risk, Risk Exposure, Coordination

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‡Division of Social Science, New York University Abu Dhabi, Abu Dhabi, PO Box 129188, United Arab Emirates. Email: aurelie.dariel@nyu.edu.

§Division of Social Science and Center for Behavioral Institutional Design, New York University Abu Dhabi, PO Box 129188, Abu Dhabi, United Arab Emirates. Email: nikos.nikiforakis@nyu.edu.

¶Naveen Jindal School of Management, University of Texas at Dallas, Richardson, TX 75080, USA. Email: simon.siegenthaler@utdallas.edu.

1 Introduction

Effective leaders promote team performance by setting a common course of action and aligning team members' expectations (e.g., Brandts and Cooper, 2006; Zehnder et al., 2017). The traits that portray effective leaders are well-explored and include communication skills (e.g., Brandts et al., 2016; Eisenkopf, 2020), charisma (e.g., Platow et al., 2006), authenticity (e.g., Woolley et al., 2011), conviction (e.g., Bolton et al., 2013), and cooperativeness (e.g., Gächter et al., 2012). Effective leadership also depends on the organizational context, such as a leader's source of authority (e.g., Brandts et al., 2015) or incentives structures (e.g., Garretsen et al., 2020; Steffens et al., 2020). Given the rising pay differences in modern organizations (e.g., Mueller et al., 2017; Ohlmer and Sasson, 2018; Gartenberg and Wulf, 2020), a crucial factor to consider is how inequality affects leadership. Nevertheless, there is little systematic evidence on this question. In this study, we examine if pay inequality between team leaders and followers causally shapes the latter's perception of the leader, thus interfering with effective leadership.

The impact of pay inequality on team coordination is not obvious. There is considerable evidence from organizations (e.g., Clark and Oswald, 1996; Bloom, 1999; Card et al., 2012; Guo et al., 2017; Perez-Truglia, 2020; Cullen and Perez-Truglia, 2022) and experimental studies (e.g., Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000) that individuals dislike pay inequality and value more equal distributions, which might undermine effective leadership. However, the fact that pay inequality is pervasive in many organizations suggests that there are factors that alleviate inequality aversion in concrete settings. Evidence shows that inequality is perceived as more acceptable if it results from legitimate factors (e.g., Shaw and Gupta, 2007; Trevor et al., 2012; Cappelen et al., 2013; Breza et al., 2018). One legitimizing factor is the familiar trade-off between efficiency and inequality (e.g., Andreoni and Miller, 2002; Charness and Rabin, 2002; Feldhaus et al., 2020; Robbins et al., 2023). Here, we focus on risk exposure, an underexplored factor that we expect to play a critical role in justifying pay inequality. Specifically, team members may perceive leaders as deserving of high earnings if leaders chose to expose themselves to greater strategic risks to enable high team performance. In many organizations, leaders indeed face more significant risks than followers because they are held accountable for bad team performance. A better understanding of the circumstances under which a leader's risk exposure can justify pay inequality is crucial for managing organizational incentive structures.

Identifying the causal impact of pay inequality and risk exposure on effective leadership is challenging. If observational data showed lower performance in teams with highly paid managers, this could be because followers dislike inequality, characteristics specific to highly paid managers, or selection into companies based on the pay structure. Similarly, if we observed that pay inequality does not reduce team performance, it would be unclear if it reflects followers' beliefs that pay inequality is legitimate or a correlation between leaders' ability and compensation. The causal impacts of a leader's risk exposure would be even harder to assess in the field due to the need for objective measures for risk exposure. To overcome these challenges, we use controlled online and lab experiments, building on a growing experimental literature on leadership (e.g., Weber et al., 2001; d'Adda et al., 2017; Nikiforakis et al., 2019; Garretsen et al., 2020). In our experiments, participants face a natural and familiar tension between a safe choice and a risky, potentially more rewarding choice. This trade-off is essential for team production beyond our experiments. Further, our online sample is large and diverse: the experiments comprise 2,030 participants from the US and Europe, allowing us to compare countries with documented differences in fairness attitudes (e.g. Almås et al., 2020; Cappelen et al., 2023).

Our experimental environment focuses on leading by example, a commonly studied leadership form (e.g., Hermalin, 1998; Sahin et al., 2015; Eisenkopf, 2020). In our environment, one of the players is the leader, who chooses between a safe and a risky project before the other team members, creating a potential focal point around which the rest of the team can coordinate. The incentives are those of a modified stag-hunt game: the safe project yields a fixed payoff that is independent of others' decisions; the risky project yields the highest payoff if successful but inflicts costs if coordination fails. These incentives capture the increasingly collaborative work in modern organizations—e.g., an assembly line moves no faster than the slowest person in the line, an aircraft is ready for take-off only when each crew member completes their task, a single line of erroneous code can stall progress, and a meeting cannot start if a key attendee is late (e.g., Lazear, 2012; Brandts et al., 2016; Zehnder et al., 2017). Our treatments exogenously vary two dimensions of the leaders' incentives. The first dimension is whether or not leaders can earn bonuses, thus creating inequality. The second is the leaders' exposure to strategic risk, that is, their cost in case of coordination failure. The key condition is one where the leader earns a bonus but also faces a larger strategic risk than the team members. Do team members perceive leaders as deserving of the bonus? Even if so, they will follow the leader's example only if they are confident that others share their perception. Cooper et al. (2020) refer to shared perceptions about the leader as the leader's social credibility.

For theoretical guidance, we propose a model combining risk dominance (e.g., Harsanyi and Selten, 1988; Dal Bó et al., 2021) and inequality aversion (e.g., Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000; Chen and Chen, 2011). The model predicts that pay inequality reduces team members' willingness to follow the leader. Moreover, the key prediction of the model is that risk exposure justifies pay inequality: leaders who are exposed to larger risks have more influence on their teams than leaders with smaller risk exposure. This effect occurs because the equilibrium selected by risk dominance depends on the leader's off-equilibrium miscoordination cost. Finally, individual heterogeneity—e.g., inequality tolerance, risk tolerance, and beliefs about others' preferences—critically affects the magnitude of the predicted effects. It is worth emphasizing that team members' financial incentives are constant in our setting. Thus, the predicted differences in team members' behaviors across conditions emanate from perceptions about the leaders' incentives.

The experimental results largely confirm the theoretical predictions, with some important deviations. First, leaders considerably improve the probability of efficient team production compared to when there is no leader. Second, pay inequality decreases team members' willingness to follow the leader and exacerbates miscoordination. Third, our key result is that leaders' risk exposure is an influential inequality-justifying factor. Team members respond to environments where leaders face elevated strategic risks by increasing their probability of following the leader, improving team coordination. In contrast to the predictions, increased risk exposure promotes leader effectiveness only in the presence of inequality, i.e., risk exposures serves specifically to justify inequality. Fourth, individual differences in the probability of following leaders are best explained by risk tolerance and beliefs about other team members' inequality tolerance, and to a lesser extent by a person's own inequality preferences. Finally, in contrast to our expectations, the European and US samples exhibit no significant differences in the treatment effects. That is, inequality reduces leadership effectiveness similarly across the subsamples, and risk exposure alleviates the impact of inequality. However, Europeans are more likely to follow leaders than US Americans across all treatments, that is, there is a level effect.

An important question in economics concerns the factors that justify a person's claim to economic income and wealth (e.g., Konow, 2003). What makes a person deserving of an economic advantage? The present study fits into a growing body of research examining the role of risk in this context (e.g., Trautmann and van de Kuilen, 2016; Cappelen et al., 2013; Andreoni et al., 2020; Hyndman and Walker, 2022). Specifically, Cappelen et al. (2013) document that third-party observers often choose to equalize inequalities between lucky and unlucky risk-takers but not inequalities between risk-takers and others who choose a safe alternative. Corroborating these insights, we show that pay inequality is more acceptable when risk-taking occurs. However, unlike Cappelen et al., we do not study ex-post redistribution of income. We focus on how risk exposure affects behavior and perceptions of inequality in a strategic setting. Our study also builds on and extends other important literature strands, including the experimental literature on leadership, the vast literature on other-regarding preferences in strategic environments, as well as the management literature on pay dispersion and transactional versus transformational leadership. In section 5, we link our experiments to these literature strands.

We organize the remainder of the paper as follows. Section 2 presents the design and theoretical framework of the online experiment. Section 3 presents the main experimental results. Section 4 discusses a complementary lab experiment. Section 5 discusses other related literature. Finally, section 6 concludes.

2 The online experiments

2.1 Sample

The experimental sessions were run between July and September 2023 on Prolific.com, an online platform for conducting surveys and experiments. Our sample consists of 2,030 participants. Approximately half of the subjects (1,063) are US citizens. The other half are from the Netherlands (440), France (257), Sweden (116), Finland (74), Denmark (40), Norway (33) and Iceland (7). Overall, 53% of the participants are male. The average age is 35, with a minimum of 18 and a standard deviation of 13. Earnings averaged an hourly rate of $28.90. The median completion time was 12 minutes.

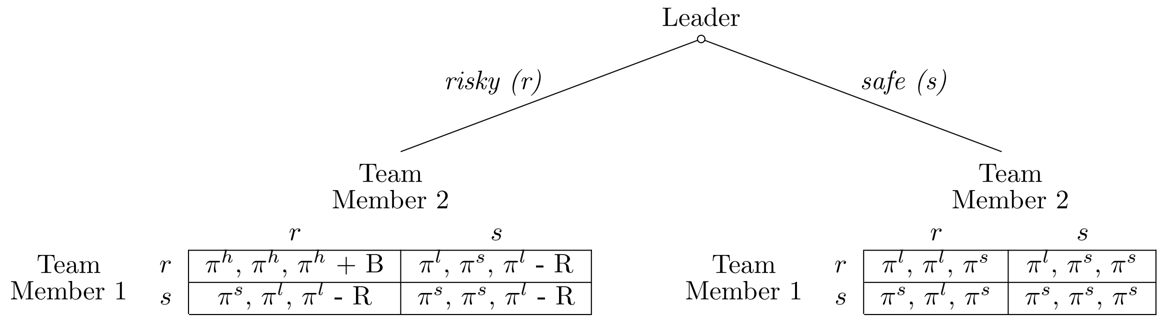
2.2 Strategic setting

The participants faced the following strategic problem. Three players in a team choose between a *risky* and *safe* project. The risky project generates the highest payoffs for everyone but only if chosen by all three players. If the group fails to coordinate on the risky project, the player(s) who attempted the risky project earn low payoffs. The player(s) who chose the safe project receive an intermediate payoff between the low and high one that does not depend on others' actions. The safe project is an attractive choice if there is significant strategic uncertainty about what others will do.

Figure 1 depicts the order of moves. One of the three players in each group is the *leader*. The leader moves first and, correspondingly, is called the first-mover in the experiment. After observing the leader's choice, the other two players simultaneously choose whether to contribute to the risky project or select the safe project. The players who move after the leader are called the *team members*.

Figure 1 also shows the payoffs for the different combinations of actions. The first number in each cell indicates the payoff for team member 1, the second number indicates team member 2's payoff, and the third number indicates the leader's payoff. If a player chooses

Figure 1: Strategic Setting



Note: The leader moves first, choosing between the *risky* and *safe* project. The two team members choose simultaneously after observing the leader's choice. In each cell, the first entry gives team member 1's payoff, the second entry gives team member 2's payoff, and the third entry gives the leader's payoff. Generally, $\pi^h > \pi^s > \pi^l$. In the experiment, $\pi^h = \$4.75$, $\pi^s = \$4$, and $\pi^l = \$2.75$. If the leader chooses *safe*, the team members have a dominant strategy to choose *safe* too. If the leader chooses *risky*, the team members face a modified stag-hunt game. The leader receives a bonus, $B \geq 0$, if the team coordinates on the risky project. Variable $R \in \mathcal{R}$ measures the leader's strategic risk exposure in excess of that faced by team members.

the *safe* project, they earn a fixed payoff of $\pi^s = \$4$ irrespective of the others' actions. If all three players choose the risky project, each team member earns $\pi^h = \$4.75$, and the leader earns $\pi^h + B$, where $B \geq 0$ is a bonus. Lastly, if a player chooses the risky project but at least one other player chooses not to contribute to the risky project, the contributing player receives $\pi^l = \$2.75$ if he is a team member and $\pi^l - R$ if he is a leader. The variable $R \in \mathcal{R}$ is the leader's strategic risk in excess of the risk faced by team members. If $R = 0$, the leader faces the same risk as the team members. If $R > 0$, the leader faces more risk than the team members. If $R < 0$, the leader faces less risk than the team members. Leaders' and team members' financial incentives are aligned independently of B and R: everyone achieves the highest earnings if everyone contributes to the risky project.

2.3 Treatments

Team members' incentives are fixed across treatments: they earn $\pi^s = \$4$ if choosing the safe project, $\pi^h = \$4.75$ if choosing the risky project and it is successful, and $\pi^l = \$2.75$ if choosing the risky project but someone else does not. The treatments vary the leader's bonus (B) and risk exposure (R). Table 1 summarizes the treatments. Each subject participated in one treatment only. The first treatment, No Leader, benchmarks the difficulty of coordinating when the two team members choose without a leader. All other treatments include a leader. Columns 5 and 6 show the leaders' bonus and risk exposure parameters. Column 7 shows the basin of attraction (BOA) of the risky project, a theoretical concept discussed in the next section.

Table 1: Treatments

Treatment	Subjects	Leaders	Team Members	Leader Bonus (B)	Leader Risk Exposure (R)	BOA if $\alpha = 0$	$\alpha = 1/4$
1. *No Leader*	224	0	224	–	–	0.375	0.459
2. *NoBonus-LessRisk*	307	78	229	\$0	-\$1.25	0.375	0.531
3. *NoBonus-SameRisk*	306	90	216	\$0	\$0	0.375	0.595
4. *Bonus-LessRisk*	297	81	216	\$5.25	-\$1.25	0.375	0
5. *Bonus-SameRisk*	311	88	223	\$5.25	\$0	0.375	0.0625
6. *Bonus-MoreRisk*	585	180	405	\$5.25	\$2.75	0.375	0.444

Notes: The 2,030 participants were assigned to six treatments in a between-subject design varying the leader's bonus (B) and risk exposure (R). In No Leader, the two team members simultaneously chose a project without a leader. Treatment Bonus-More was divided into two subtreatments with the same leader incentives. In one subtreatment, players could choose whether they wanted to act in the leader or team member role. BOA refers to the basin of attraction of the risky-project equilibrium.

Treatments two and three have no bonus for the leader, i.e., $B = 0$, and vary the leader's risk exposure over $R = \{-1.25, 0\}$. If $R = -1.25$ the leader faces less risk from choosing the risky project than the team members because she earns $\pi^l - (-\$1.25) = \$4$ even if the risky project fails. If $R = 0$, the leader faces the same risk as the team members, earning $\pi^l = \$2.75$ if contributing to a failing risky project. These two treatments allow us to observe if decreased risk exposure undermines leader effectiveness in the absence of bonuses and inequality.

Treatments four to six feature bonuses of $B = 5.25$, thus increasing the leader's payoff to $\pi^h + B = \$10$ for a successful risky project. Here, we vary the leader's risk exposure over $R = \{-1.25, 0, 2.75\}$. If $R = 2.75$, the leader faces more risk from choosing the risky project than the team members, earning $\pi^l - R = \$0$ if contributing to a failing risky project. The latter is a crucial condition because we can observe whether increased leader risk exposure can justify the inequality of the bonus. This treatment has more observations because it is divided into two subtreatments.[1] The treatment with $R = -1.25$, on the other hand, allows us to observe the effectiveness of leaders who are better off on both dimensions, i.e., who earn a bonus and also face less risk than team members.

What information did the participants have when making their decisions? All participants knew the details of the decision environment, including the leader's and team members' payoffs and the timing of moves. Leaders chose a project, knowing the two team members

[1] In one subtreatment, we assigned the role of the leader exogenously for each team. In the other subtreatment, participants could indicate whether they want to be the leader or a team member. We pool the data for clarity. In online appendix B.5, we show that behavior is similar in both cases and discuss leader emergence.

would observe their choice. Team members were presented with their leader's project choice and asked to choose a project without knowing the other team member's choice. Comprehension questions required participants to correctly enter the payoffs of leaders and team members for each combination of safe and risky project choices. Online appendix A contains the instructions and all screens of the experimental interface.[2]

2.4 Theoretical framework and hypotheses

We propose a simple model that combines risk dominance and inequality aversion, two well-established features of human behavior. We pre-registered the model and the hypotheses that follow from it (AEARCTR-0011326).

Risk dominance is an equilibrium selection criterion positing that strategic uncertainty drives decision-making (Harsanyi and Selten, 1988). Experimental evidence indeed shows that the risks associated with strategic uncertainty often dominate efficiency considerations (e.g., Camerer, 2011; Dal Bó et al., 2021). In our context, if the leader chooses the risky project, the team members face a coordination game with two pure strategy equilibria. Both team members following the leader in choosing the risky project is the payoff-maximizing equilibrium. However, under standard preferences, both team members choosing the safe project is the risk-dominant equilibrium. Risk dominance is determined by the largest basin of attraction (BOA). The BOA of the risky project—henceforth denoted by ϕ—is the highest probability that one can believe the other player will choose the safe project, so one still prefers to choose the risky project. With standard preferences, the BOA for the team members is

$$\phi = 1 - \frac{\pi^s - \pi^l}{\pi^h - \pi^l} \tag{1}$$

For our parameters, $\phi = 0.375$. The safe project's BOA is $1 - \phi = 0.625$. Thus, risk dominance predicts that the safe project to be the empirically more common choice.

Following the literature on inequality aversion (e.g., Fehr and Schmidt, 1999; Charness and Rabin, 2002; Chen and Li, 2009), we now let a player's utility be described by

$$u_i(\pi) = \pi_i - \alpha_i \sum_{j \neq i} |\pi_i - \pi_j| \tag{2}$$

[2]Eight percent of the recruited subjects were excluded after the instruction stage as they failed to answer the comprehension questions correctly in three attempts. All treatments with a leader are equally complex, and exclusion rates are similar across treatments. The exception is the No Leader treatment, which had fewer comprehension questions, and only 1% of the subjects were excluded.

where π is the vector of players' payoffs, and $\alpha_i \geq 0$ is an inequality aversion parameter multiplied by the sum of payoff differences with the other players.[3] With other-regarding preferences, the risky project's BOA becomes

$$\phi_\alpha = 1 - \frac{(1-\alpha_i)(\pi^s - \pi^l)}{\pi^h - \pi^l + \alpha_i(\pi^s - \pi^l + R - B)} \tag{3}$$

Column 7 of table 1 shows the risky project's BOA for $\alpha = 0$ and $\alpha = 0.25$. One can see that without inequality concerns, the BOA is the same for all treatments. With positive α, leader bonuses decrease the BOA, while risk exposure increases the BOA. This information illustrates the general comparative statics forming our main hypotheses.

Hypothesis 1: *Leaders whose incentives are symmetric to those of the team members (i.e., $B = 0$ and $R = 0$) increase the team members' probability of choosing the risky project compared to when there is no leader.*

This hypothesis follows because $\phi_\alpha > \phi$ if $B = 0$ and $R = 0$. The leader's presence increases the risky project's BOA because inequality-averse team members have a greater desire to coordinate on the leader's example.[4]

Hypothesis 2: *Higher bonuses (B) decreases the team members' probability of following leaders in choosing the risky project.*

The second hypothesis follows because $\partial\phi_\alpha/\partial B < 0$, i.e., increasing the leader's bonus shrinks the risky project's BOA. The leader's favorable incentives undermine her ability to coordinate a team.

Hypothesis 3: *Higher risk exposure by leaders (R) increases the team members' probability of following leaders in choosing the risky project.*

The third hypothesis follows because $\partial\phi_\alpha/\partial R > 0$. The risky project's BOA increases even though payoff inequality remains the same conditional on coordination on the risky project. What drives the prediction is that team members are responsive to the off-equilibrium miscoordination payoffs when evaluating equilibrium outcomes. Specifically, team members are willing to accept the pay inequality implied by the risky project because of the possibility

[3]The literature distinguishes between equality preferences stemming from envy or charity concerns, that is, from earning less or more than others. Both effects are important for our predictions. Envy implies a dislike for the leader's bonus, while charitable preferences allow players to recognize the leader's risk exposure. While straightforward, considering different parameters for envy and charity is unnecessary for our purposes.

[4]If team members have other-regarding preferences towards other team members but not the leader, the BOA for $B = 0$ and $R = 0$ is $1 - (\pi^s - \pi^l)/(\pi^h - \pi^l + \alpha_i(\pi^s - \pi^l))$, which exceeds ϕ but is smaller than ϕ_α.

of miscoordination, which would harm the leader disproportionately. They are predicted to perceive leaders as more deserving of higher earnings due to their elevated strategic risks.

We next turn to individual heterogeneity.

Hypothesis 4: *The probability of a team member following leaders in choosing the risky project increases with her (beliefs about) inequality tolerance and risk tolerance.*

Suppose some participants exhibit greater inequality aversion and also believe others are inequality averse. Such individuals can be thought of as having a higher α. We have $\partial\phi_\alpha/\partial\alpha < 0$ if $B - R > \pi^h + \pi^s - 2\pi^l$. That is, increasing inequality aversion decreases the risky project's BOA if the leader bonus is large relative to her risk exposure. This means we expect participants who are more sensitive to inequality aversion to respond more negatively to the bonuses. We also considered the effects of risk aversion based on the exponential utility function, $(1 - e^{-\rho_i u_i(\pi)})/u_i(\pi)$, where ρ_i is the risk aversion parameter. One finds that risk aversion decreases the risky project's BOA. We avoid the details here because, intuitively, the result simply reflects the fact that risk-tolerant players are less afraid of strategic uncertainty.

Lastly, we consider differences between the European and US samples.

Hypothesis 5: *The adverse effects of bonuses are stronger in the European than in the US sample.*

The literature documents substantial heterogeneity in fairness attitudes across countries and cultures (e.g., Falk et al., 2018; Cappelen et al., 2023). Almås et al. (2020) find that US Americans are significantly more willing to accept inequality than are Norwegians when making distributive decisions in an identical economic environment. Americans are less likely to divide equally than are Norwegians (42.3% vs. 63.3%) and more likely not to redistribute (32.4% vs. 14.8%). Applied to our case, these results suggest that US participants have a smaller α. Almås et al. further show that both the Americans and the Norwegians implemented income distributions in the experiment that imply Gini coefficients similar to their countries' actual Gini coefficients. The European subsample includes the Netherlands, France, Finland, and Scandinavia. These countries have relatively similar Gini coefficients that are clearly below the US.[5] Hypothesis 5 is based on these observations.

[5]According to The World Bank, the US has a Gini coefficient of 39.8. The European Gini coefficients are 26.0 (Netherlands), 30.7 (France), 28.9 (Sweden), 27.1 (Finland), 27.5 (Denmark), 27.7 (Norway), and 26.1 (Iceland). See https://data.worldbank.org/indicator/SI.POV.GINI.

2.5 Elicitation of risk and fairness attitudes

We elicited risk attitudes by asking each participant to choose one among the following six lotteries: 80% chance of winning \$0.40, 70% chance of winning \$0.60, 60% chance of winning \$0.80, 50% chance of winning \$1.00, 40% chance of winning \$1.20, and 30% chance of winning \$1.40. The lottery choices order subjects by risk preference, with the first lottery revealing the greatest risk aversion and the last being the most risk-loving choice. Participants also indicated on a ten-point scale if they are generally willing to take risks or if they try to avoid taking risks. As a proxy for a subject's risk tolerance, we use the average of the normalized incentivized (i.e., the lottery choices) and unincentivized measures. We do this to reduce measurement error. The results separately hold for each measure; see online appendix B.1.

To elicit participants' inequality tolerance, everyone had to choose one of two distributions determining payments for themselves and another randomly selected participant. The first distribution gave \$0.475 to oneself and \$1 to the other person. These payoffs are proportional to those of a team member and the leader (including the bonus) for a successful risky project in the main game. The second distribution gave \$0.40 to both players. These payoffs are proportional to the safe project in the main game. Participants also indicated if they are generally willing to accept inequalities or prefer to avoid them. We average the distribution choice and the unincentivized question to obtain a single measure for inequality tolerance (see online appendix B.1). Finally, we elicited beliefs about inequality tolerance by asking participants to guess the percentage of other participants who chose the first distribution in the above task. We incentivized guesses with \$1 if the guess falls within 5% of the actual outcome.[6]

3 Results

Table 2 shows, for each treatment, the likelihood that team members follow leaders who choose the risky project, the implied distribution of outcomes, i.e., coordination on the safe project, miscoordination, or coordination on the risky project, and team members' average payoff gain relative to the safe payoff of \$4.

[6] We randomized whether the risk and inequality tolerance elicitation tasks appeared before or after the main experiment. Participants did not receive any feedback until the end of the experiment. Our results are independent of the order of the two parts; see online appendix B.2.

3.1 Leaders improve team performance

In treatment No Leader, 25.9% of the team members chose the risky project. The probability of both team members choosing the safe project is 54.9%. The probability of miscoordination, i.e., players choosing different projects, is 38.4%. The probability of a successful risky project, i.e., both players choosing risky, is only 6.7%. These results demonstrate the difficulties posed by strategic uncertainty for efficient team production. Indeed, team members' payoffs in No Leader fall 25.3% short of the safe project's benchmark payoff of $4.

Our first finding is that leaders improve upon team performances without a leader.

Finding 1 (Support for Hypothesis 1)**:** *Leaders increase the probability of a successful risky project and team member earnings compared with the No Leader treatment.*

Support: Table 2 shows that in NoBonus-SameRisk, where the leaders' incentives are symmetric to those of the team members, team members follow leaders in choosing the risky project with a probability of 69.1%, significantly more often than they choose the risky project without a leader (Wilcoxon ranksum, $p < .001$). How does this behavior translate into team outcomes? While leaders choose the risky project with a probability of only 38.9%, the probability of a successful risky project still triples to 18.5% compared to No Leader.[7] An additional benefit is that miscoordination occurs in only 20.3% of the teams, which is half of the miscoordination rate observed in No Leader. Team members' payoffs relative to the safe project thus increase from -25.2% in No Leader to plus 4.6% in NoBonus-SameRisk ($p < .001$). When combining all treatments, introducing a leader increases the probability of a successful risky project from 6.9% in No Leader to an average of 34.7% in the other treatments ($p < .001$), and team member payoffs relative to the safe project payoff increase from -25.2% without a leader to plus 8.6% with a leader ($p < .001$). We conclude that leaders promote team performance.

3.2 Pay inequality undermines effective leadership

Do leader bonuses affect team members' willingness to follow? Our second main finding shows that leaders' ability to influence team members deteriorates with higher bonuses, though not in all circumstances.

Finding 2 (Partial Support for Hypothesis 2)**:** *Leader bonuses ($B > 0$) decrease the probability of team members following leaders in choosing the risky project. However, this effect*

[7] For completeness, we note that the leaders' probability of choosing the risky project is 83.3% in NoBonus-LessRisk, 38.9% in NoBonus-SameRisk, 96.3% in Bonus-LessRisk, 78.4% in Bonus-SameRisk, and 67.2% in Bonus-MoreRisk. Online appendix B.4 examines leader behavior in more depth.

Table 2: Probability of Risky Project and Team Outcomes

	Team Members $Pr(risky \mid \text{leader chose } risky)$	Outcome Distribution (safe, miscoord., risky)			Team Members' Payoff Gain (relative to safe)
No Leader	25.9%	54.9%	38.4%	6.7%	-25.3%
NoBonus-LessRisk	68.6%	16.7%	44.1%	39.2%	9.3%
NoBonus-SameRisk	69.1%	61.1%	20.3%	18.5%	4.6%
Bonus-LessRisk	59.5%	3.2%	62.7%	34.0%	-5.0%
Bonus-SameRisk	70.5%	21.6%	39.4%	39.0%	11.8%
Bonus-MoreRisk	75.7%	28.6%	32.8%	38.5%	14.4%

Notes: Table shows the percentage of team members who choose the risky project conditional on the leader having done so (except in No Leader, where the percentage is unconditional), the distribution of outcomes (everyone chooses the safe project, players miscoordinate, or everyone chooses the risky project), and team members' payoff gain relative to the safe project payoff of $4.

only occurs when the leader faces no risk.

Support: Table 2 shows that team members' probability of following leaders is lowest in Bonus-LessRisk, namely 59.5%. If we remove the leader's bonus, thus considering treatment NoBonus-LessRisk, the team members' probability of following the leader increases to 68.6% (Wilcoxon ranksum, $p = .059$). Table 3 shows OLS regressions for the probability of team members following leaders in choosing the risky project. The reference treatment is No Leader. Regression models (1), (3), (4), and (5) confirm that team members are more likely to follow leaders in NoBonus-LessRisk than Bonus-LessRisk (Wald, $p = .045$). Still, the results do not fully confirm Hypothesis 1 because bonuses do not decrease team members' probability of following leaders when leaders face risk: the probability of following leaders is no different between NoBonus-SameRisk and Bonus-SameRisk (69.1% versus 70.5%, Wilcoxon ranksum $p = .758$).

3.3 Risk exposure justifies pay inequality

We next turn to our main question: Do team members respond to changes in leaders' risk exposure? The data answers this question affirmatively.

Finding 3 (Support for Hypothesis 3)**:** *Increased leader risk ($R > 0$) increases the probability of team members following leaders in choosing the risky project. The effect occurs because risk justifies inequality.*

Support: Table 2 shows that team members' probability of following leaders increases from

Table 3: OLS Regressions – Probability of Choosing the Risky Project

Dep Var: $Pr(risky \mid \text{leader chose } risky)$	(1)	(2)	(3)	(4)	(5)	(6)	(7)
NoBonus-LessRisk	0.427***		0.412***	0.409***	0.383***		
	(0.044)		(0.044)	(0.044)	(0.069)		
NoBonus-SameRisk	0.432***		0.408***	0.401***	0.405***		
	(0.045)		(0.044)	(0.044)	(0.068)		
Bonus-LessRisk	0.336***		0.321***	0.316***	0.308***		
	(0.047)		(0.046)	(0.046)	(0.071)		
Bonus-SameRisk	0.446***		0.412***	0.408***	0.405***		
	(0.044)		(0.045)	(0.045)	(0.069)		
Bonus-MoreRisk	0.498***		0.475***	0.470***	0.443***		
	(0.038)		(0.038)	(0.038)	(0.061)		
Risk tolerant		0.365***	0.350***	0.340***			
		(0.068)	(0.064)	(0.064)			
Inequality tolerant		0.033	0.019	0.012			
		(0.061)	(0.055)	(0.055)			
Belief ineq. tolerance		0.246***	0.181***	0.170***			
		(0.060)	(0.056)	(0.056)			
US				-0.058**	-0.127**	-0.075***	-0.046*
				(0.025)	(0.062)	(0.028)	(0.028)
NoBonus-LessRisk x US					0.065		
					(0.090)		
NoBonus-SameRisk x US					0.016		
					(0.093)		
Bonus-LessRisk x US					0.025		
					(0.095)		
Bonus-SameRisk x US					0.055		
					(0.091)		
Bonus-MoreRisk x US					0.081		
					(0.079)		
Bonus						-0.095**	-0.320**
						(0.048)	(0.163)
Risk Exposure						-0.002	-0.437***
						(0.047)	(0.155)
Bonus x Risk Exposure						0.146**	0.678***
						(0.062)	(0.209)
Risk tolerant & Belief ineq. tolerance (RT&BIT)							0.217
							(0.189)
Bonus x RT&BIT							0.408
							(0.277)
Risk Exposure x RT&BIT							0.750***
							(0.254)
Bonus x Risk Exposure x RT&BIT							-0.948***
							(0.346)
Constant	0.259***	0.266***	-0.021	0.029	0.337***	0.727***	0.591***
	(0.029)	(0.046)	(0.047)	(0.053)	(0.051)	(0.035)	(0.113)
Observations	1300	1300	1300	1300	1300	1076	1076
R^2	0.125	0.048	0.159	0.162	0.134	0.019	0.064

Notes: * significant at 10%, ** significant at 5%, *** significant at 1%. The dependent variable is the team members' probability of choosing the risky project if the leader has done so. The reference treatment is No Leader in models (1) to (5). Models (6) and (7) exclude No Leader so that the reference treatment is NoBonus-LessRisk. Bonus is a dummy for treatments with a bonus. Risk Exposure is a dummy for treatments where the leaders are exposed to the same or more risk than team members. The variable RT&BIT averages an individual's risk tolerance and belief about inequality tolerance measures (normalized between 0 and 1).

59.5% in Bonus-LessRisk to 70.5% in Bonus-SameRisk (Wilcoxon ranksum, $p = .024$) and the highest value of 75.7% in Bonus-MoreRisk ($p < .001$). The difference between the latter two conditions is insignificant ($p = 0.199$). Overall, the treatments in which leaders face the same or more risk than team members exhibit a significantly higher probability of team members following leaders than those where leaders have less risk ($p = .004$). Interestingly, when there is no bonus, increasing leaders' risk exposure between NoBonus-LessRisk and NoBonus-SameRisk does not reduce team members' willingness to follow the leader (68.6% versus 69.1%, Wilcoxon ranksum $p = .922$). Thus, greater risk exposure by leaders mitigates the adverse effects of inequality. Risk exposure does not have an inequality-independent effect on team members' willingness to follow leaders.

The regressions in Table 3 confirm the results from the non-parametric tests. Across the different regression models, the coefficient of Bonus-LessRisk is significantly smaller than the coefficients for Bonus-SameRisk (Wald, $p = .040$) and Bonus-MoreRisk ($p < .001$). The coefficients of NoBonus-LessRisk and NoBonus-SameRisk do not differ ($p < .895$), confirming that risk exposure works to justify inequality but has no effect on average team member behavior when there are no bonuses. Regression model (6) uses the dummy Bonus for treatments with a bonus and the dummy Risk Exposure for treatments where the leaders are exposed to the same or more risk than team members. The results reconfirm that bonuses decrease team members' willingness to follow leaders. Crucially, the significant interaction effect, Bonus × Risk Exposure, reconfirms that risk exposure serves to justify inequality.

3.4 Risk and fairness attitudes

We next turn to individual heterogeneity. We predicted that risk and inequality tolerance increase team members' willingness to follow leaders. We also emphasized the role of beliefs about others' inequality tolerance. The data confirms the theoretically hypothesized effects, with some nuances.

Finding 4 (Support for Hypothesis 4)**:** *Higher risk tolerance and higher beliefs that other team members are inequality tolerant increase team members' probability of following leaders. Moreover, the detrimental impact of pay inequality and the inequality-justifying effect of risk exposure is most pronounced for team members who are relatively risk-averse and believe others are inequality-averse.*

Support: Regression models 2 to 4 in Table 3 show the effects of risk tolerance, inequality tolerance, and beliefs about whether or not others are inequality tolerant. These variables come from the elicited measures described in section 2.5. Each of the variables is normalized to lie between 0 and 1. The regressions show that greater risk tolerance and beliefs that others are inequality tolerant significantly increase team members' probability of following leaders. The effects are large, with a 36.5% points difference between a risk-averse and risk-tolerant person and 24.6% points between someone who believes others are inequality-averse rather than inequality-tolerant (model 2). The estimates are stable when controlling for treatment and nationality (models 3 and 4). In contrast, the regressions show that a team member's own inequality tolerance has no statistically significant impact on her project choice. These results suggest that it is primarily the strategic uncertainty caused by the presence of inequality that affects project choices, rather than inequality aversion itself.[8]

Does the effect of risk tolerance and beliefs about inequality tolerance differ by treatment? We find the most substantial effect in Bonus-LessRisk: the willingness to follow the leader is 80% for team members with above-median risk tolerance and beliefs about inequality tolerance, 59.4% for those who are above the median on one but not the other measure, and 38.6% for team members with below-median scores on both measures. For comparison, in Bonus-MoreRisk, the differences are much smaller: the willingness to follow the leader is 83.1% for team members with above-median risk tolerance and beliefs about others' inequality tolerance, 75.3% for those who are above the median on one but not the other measure, and 66.1% for team members with below-median scores on both measures. These findings show that preference heterogeneity matters most in conditions conducive to the belief that leaders are undeserving of bonuses. To confirm these insights, regression model 7 in table 3 uses the variable Risk tolerant & Belief inequality tolerance (RT&BIT). RT&BIT is the average of a participant's normalized risk tolerance score and her belief that others are inequality tolerant. The estimates show that the presence of a leader bonus reduces the willingness to follow leaders by 32% points for team members with low values of RT&BIT, that is, who are risk averse and believe that others are inequality averse. These participants are also most responsive to leaders' increased risk exposure, as shown by the positive interaction effect Bonus × Risk Exposure. That is, risk exposure alleviates the adverse impact of inequality particularly for people who are worried about inequality. Finally, the interactions with RT&BIT show that participants with higher risk tolerance levels and more optimistic beliefs about others' inequality tolerance are less affected by leaders' bonuses and changes in risk exposure.

[8]Inequality tolerance becomes highly significant if one excludes the beliefs about others' inequality tolerance from the regression. Inequality tolerance and beliefs about others' inequality tolerance have a Pearson correlation coefficient of 0.64 ($p < .001$).

3.5 Comparison of US and Europe

We hypothesized that the adverse effects of pay inequality are stronger in the European than the US sample.

Finding 5 (Rejecting Hypothesis 5)**:** *The adverse effect of pay inequality does not differ in magnitude between the European and US sample. However, there is a level effect, as European participants are more likely to choose the risky project than US participants.*

Support: Regression model 4 in Table 3 shows that US participants in the role of team members were, on average, 5.8% points less likely to follow the leader in choosing the risky project than European participants. Regression model 5 shows that, in No Leader (the reference treatment), US participants are 12.7% less likely than European participants to choose the risky project. However, US and European participants do not respond differently to pay inequality. The interaction terms are insignificant and not different from each other. See online appendix B.3, where we report regression models 1 to 4 of Table 3 separately for the US and the European sample and show that the treatment effects are similar.

Efficiency concerns can explain the similar treatment effects across countries. Recall that we elicit fairness attitudes by asking participants to select a payoff distribution: either \$0.475 to oneself and \$1 to the other person or \$0.40 for both. We find that Europeans selected the unequal but efficient option more often than US participants (76% versus 59.4%, Wilcoxon ranksum, $p < .001$). Europeans also have more optimistic beliefs about the percentage of others selecting the unequal option than US participants (66.7% versus 57.4%, $p < .001$). Such differences do not appear in the unincentivized fairness elicitation question, which asked people about their willingness to accept inequalities in a way that is independent of efficiency. The normalized score is 0.45 for Europeans and 0.44 for US participants ($p = .155$). These observations indicate that European participants value efficiency in this setting, explaining why they are more willing to follow leaders across all treatments. It thus seems that team collaboration may be affected more by differences in beliefs and norms about cooperativeness—i.e., the desire to reach beneficial team outcomes—than differences in inequality attitudes. US teams could have improved their outcomes by trusting more that others would also act in the team's interest.

4 Laboratory study

4.1 Purpose and sample

The leader bonuses in the online experiment allowed leaders to earn almost twice as much as followers. However, in reality, pay inequalities can be more significant both in absolute and relative terms. Can risk exposure still justify inequality if bonuses are larger? In the lab experiments reported in this section, leaders earn 3.8 times more than team members when coordinating on the risky project. Moreover, the stakes are increased. Participants' earnings averaged \$44.35 for team members and \$84.12 for leaders. The highest-earning leader received \$173.97. The lab experiments also extend our main results in another empirically important direction by considering larger teams of six people.

The lab experiments were run between 2017 and 2020 at NYU Abu Dhabi. The participants are university students from all fields, between 19 and 24 years of age, and balanced by gender. The total number of participants is 228. The lab sessions lasted 75 minutes or less.

4.2 Weakest-link team production

Teams comprised one leader and five team members interacting over 15 periods. In each period, the leader first chose an effort between 0 and 7. After observing the leader's choice, all team members simultaneously chose their efforts. After each period, we informed everyone about their payoff, the minimum effort chosen in their team, and the leader's payoff. Subjects earned the sum of payments made over the 15 periods.

We generalize the modified stag-hunt game of the online experiments to larger teams. We achieve this by employing the weakest-link game (Van Huyck et al., 1990; Brandts and Cooper, 2006). Individual i's payoff function is

$$\pi_i(x) = b \min x - c x_i, \tag{4}$$

where x is the six-dimensional vector of effort choices. The parameter c is a cost for exerting effort, and the parameter b is a benefit from production. As one can see, output depends on the minimum effort exerted by any team member. Effort costs are increasing in i's own effort. The payoff structure of the online experiment is captured by a specific version of (4).[9] Any strategy profile where everyone chooses the same effort is a Nash equilibrium. The

[9] To see this, restrict effort to be either 0 or 1, and suppose the team comprises one leader and two team members. Then, the incentives of the online experiments can be generated by setting $b = \$2$ and $c = \$1.25$, also adding a constant payment of \$4 to capture the safe payoff.

Table 4: Treatments in Lab Experiment

Treatments	Subjects	Leaders	Team Members	Leader Bonus (B)	Leader Risk Exposure (R)	Leader Payoff Range (per period)
NoBonus-SameRisk	72	12	60	\$0	\$0	[\$0.19, \$2.85]
Bonus-SameRisk	72	12	60	\$1.33	\$0	[\$0.19, \$10.83]
Bonus-MoreRisk	84	14	70	\$1.33	\$0.76	[−\$3.80, \$10.83]

Notes: In all treatments, team members have a net benefit parameter of $\beta = 0.19$ and a cost on wasted effort of $c = 0.19$. The table shows the leaders' bonus (B) above the team members' net benefit, the leaders' excess risk (R) relative to the team members' cost of wasted effort, and the implied possible per-period payoff range.

highest-effort equilibrium (everyone choosing an effort of 7) generates the highest payoff for everyone but bears the most significant strategic risk. The lowest-effort equilibrium is the safest choice, with payoffs independent of others' choices.

4.3 Treatments

It is helpful to rewrite the payoff function in (4) as

$$\pi_i(x) = \beta \min x - c x_i^w \tag{5}$$

where $\beta \equiv b - c$ is the net benefit per unit of minimum effort and $x_i^w \equiv x_i - \min x$ is individual i's wasted effort, i.e., the effort that exceeds the minimum effort. We define $B \geq 0$ as the difference between the leader's and team members' values for β. Thus, B represents the leader's bonus. Similarly, let $R \in \mathcal{R}$ be the difference between the leader's and team members' values for c. Thus, R is the leader's risk exposure in excess of that of team members.

The treatments vary B and R, as summarized in Table 4: NoBonus-SameRisk, Bonus-SameRisk, and Bonus-MoreRisk. Team members' payoff parameters in all three treatments are $\beta = c = \$0.19$. Everyone also earned an additional fixed amount of \$1.52 per period to avoid negative earnings for team members. We used experimental currency units (ECU) to describe the incentives to the participants. Specifically, to describe the leaders' incentives, we used the payoff tables in table 5. For example, in the second table (Bonus-SameRisk), the leader earned 420 ECU if choosing an effort of 6 and the minimum effort chosen in the team was 5.

In NoBonus-SameRisk, leaders and team members face the same payoff parameters, i.e., leaders could not earn a bonus ($B = \$0$) and faced no additional risk exposure ($R = \$0$).

Table 5: Leader Payoffs in Lab Experiment

NoBonus-SameRisk

Own effort	*Minimum effort* 7	6	5	4	3	2	1	0
7	150	130	110	90	70	50	30	10
6	-	140	120	100	80	60	40	20
5	-	-	130	110	90	70	50	30
4	-	-	-	120	100	80	60	40
3	-	-	-	-	110	90	70	50
2	-	-	-	-	-	100	80	60
1	-	-	-	-	-	-	90	70
0	-	-	-	-	-	-	-	80

Bonus-SameRisk

Own effort	*Minimum effort* 7	6	5	4	3	2	1	0
7	570	490	410	330	250	170	90	10
6	-	500	420	340	260	180	100	20
5	-	-	430	350	270	190	110	30
4	-	-	-	360	280	200	120	40
3	-	-	-	-	290	210	130	50
2	-	-	-	-	-	220	140	60
1	-	-	-	-	-	-	150	70
0	-	-	-	-	-	-	-	80

Bonus-MoreRisk

Own effort	*Minimum effort* 7	6	5	4	3	2	1	0
7	570	460	350	240	130	20	-90	-200
6	-	500	390	280	170	60	-50	-160
5	-	-	430	320	210	100	-10	-120
4	-	-	-	360	250	140	30	-80
3	-	-	-	-	290	180	70	-40
2	-	-	-	-	-	220	110	0
1	-	-	-	-	-	-	150	40
0	-	-	-	-	-	-	-	80

Notes: Leader's payoffs in the different treatments for all combinations of own effort and minimum effort. Team members' payoffs are identical to the leader's in treatment *NoBonus-SameRisk*, that is, the first table provides the incentives faced by team members.

Leaders and team members could earn between \$0.19 (10 ECU) and \$2.85 (150 ECU) per period. In Bonus-SameRisk, we increased the leaders' bonus to B = \$1.33 per effort level so leaders could earn between \$0.19 and \$10.83 (570 ECU) per period. In Bonus-MoreRisk, we also increased leaders' risk exposure to R = \$0.76. So, leaders could still earn \$10.83 per period but could now also *lose* up to \$3.80 (-200 ECU) in case of coordination failure.

The theoretical hypotheses for the lab experiment follow those of the online experiment. We expect that leader bonuses decrease team members' willingness to follow the leader. Moreover, increasing leaders' risk exposure is expected to mitigate this effect.

4.4 Results

We separate the discussion into period-1 behavior and behavior over time. Examining behavior in the first period is essential because it allows us to observe independent decisions that can be meaningfully compared to the online experiments. Once leaders and team members receive feedback about past team outcomes, decisions are not independent anymore. The interest shifts to studying behavioral convergence over time.

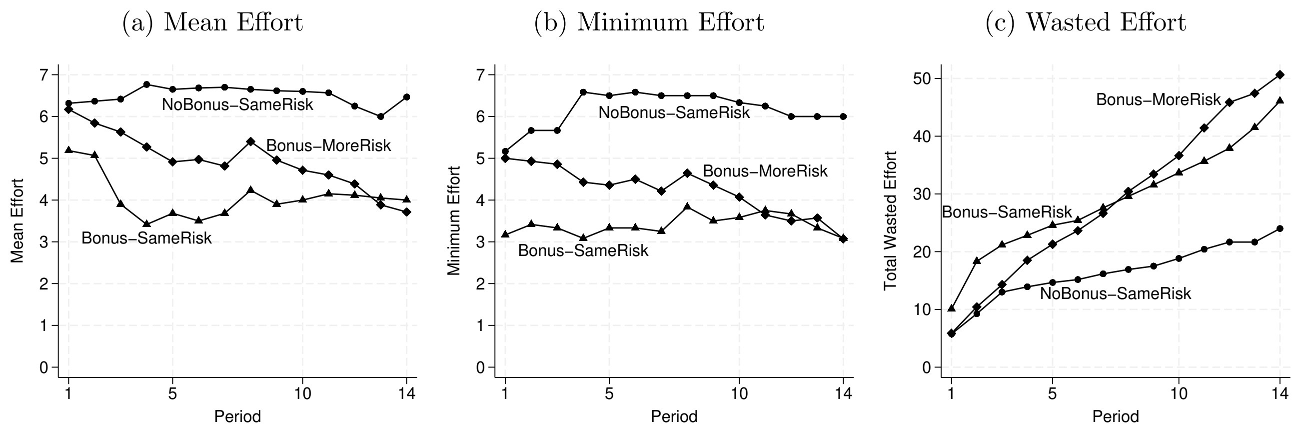
4.4.1 Initial behavior

The period-1 behavior in the lab experiment aligns with the conclusions from the online experiments.

Finding 6: *In the first period of the lab experiment, (i) pay inequality significantly reduces team performance, and (ii) increasing leaders' risk exposure restores high team performance.*

Support: Figure 2 shows that leader bonuses adversely affects team performance. Comparing period-1 behavior in NoBonus-SameRisk with Bonus-SameRisk, mean team member effort drops from 6.3 to 5.2 (Wilcoxon ranksum, $p = .017$) and minimum effort drops from 5.2 to 3.2 ($p = .048$). Like in the online experiments, pay inequality undermines leadership effectiveness. To assess the impact of greater risk exposure for leaders, we compare period-1 behavior in Bonus-SameRisk to Bonus-MoreRisk. Increased risk exposure by leaders increases mean team member effort from 5.2 to 6.2 ($p = .023$), and minimum effort increases from 3.2 to 5.0 ($p = .043$). Like in the online experiments, risk exposure justifies pay inequality in the eyes of team members and reduces strategic uncertainty. In fact, in period 1, team members' behavior in Bonus-MoreRisk is indistinguishable from that in NoBonus-SameRisk when there is no inequality.

Figure 2: Team Performance in Lab Experiment



Notes: Figures show the mean effort, minimum effort, and wasted effort averaged over teams for all treatments. Wasted effort is effort above the minimum effort, where a flattening of the line indicates equilibrium convergence. Period 15 is dropped for better visualization due to a last-period effect causing efforts to drop in all treatments.

4.4.2 Behavior over time

Figure 2 depicts the evolution of team members' mean and minimum effort over time. This analysis is exploratory. In NoBonus-SameRisk, efforts remain high over time and converge to efficient high-effort equilibria. Interestingly, as shown in panel (b), minimum efforts increase initially as players who choose low initial efforts are pulled upwards toward the mean. The efficient equilibrium is a strong attractor because there is no trade-off between efficiency and equality.

In Bonus-SameRisk, inequality hinders the ability of teams to reach high-effort outcomes. Mean and minimum efforts start lower than in NoBonus-SameRisk. Contrasting with the above treatment, mean efforts are pulled downward to approach minimum efforts over time. Mean effort averaged over periods is significantly lower in Bonus-SameRisk than NoBonus-SameRisk (4.03 versus 6.45, Wilcoxon ranksum $p = .002$). The same holds for minimum effort (3.40 versus 6.16, $p = .002$).

While we saw that increased risk exposure in Bonus-MoreRisk eliminates the adverse effects of leader bonuses in period 1, it fails to do so consistently over time. Mean and minimum efforts in Bonus-MoreRisk approach the levels observed in Bonus-SameRisk, falling to the same level by the last period. The data suggests two main mechanisms. First, panel (c) in figure 2 shows the sum of wasted effort aggregated over time. A flattening line, as seen in NoBonus-SameRisk, indicates that teams choose more similar effort levels over time. In contrast, the treatments with bonuses do not exhibit convergence to an equilibrium. This suggests that the tension between efficiency and inequality is never resolved, precluding dynamic coordination. Second, there is another noteworthy pattern in Bonus-MoreRisk. Five of the fourteen teams fully coordinated on an effort of 6 or 7 at some point but subsequently broke coordination (not shown in the figure). This pattern occurred only in one team in each of the other treatments. It seems that team members initially accept and believe others accept the leaders' high earnings in Bonus-MoreRisk. However, the effect of risk exposure weakens once teams have achieved coordination; after all, if everyone expects others to choose a high effort, the strategic risk is minimal even if miscoordination is associated with high costs. Some team members thus develop discontent with the accumulating pay gap and eventually choose to break coordination.

5 Related literature

In this section, we connect our contributions to the broader leadership literature. First, there is a thriving experimental literature on leadership. Brandts and Cooper (2006, 2007), Brandts et al. (2007), and Brandts et al. (2016) develop the corporate turnaround game to study how leadership–e.g., through different types of communication, increased bonuses for employees, or leader elections—can help teams break out of low-performance traps.[10] Sahin et al. (2015), Gächter and Renner (2018) and Eisenkopf (2020) study leading by example and communication in coordination, public goods, and contest games. Potters et al. (2007) study leading by example when leaders have private information. Jack and Recalde (2015) study leading by example in a field experiment in rural Bolivia. Overall, economic experiments document that leadership effectiveness depends on communication, information, the organizational context, a leader's source of authority, and followers' financial incentives. The impact of inequality between leaders and followers has not been studied so far in this literature. We fill this gap by showing that increases in pay inequality hinder leaders' ability to influence their teams. Most importantly, we show that risk exposure restores leaders' ability to influence followers' behavior.

We also connect to the literature on other-regarding preferences. Our theory and experimental design rely on other-regarding preferences, as without them, a change in the leaders' incentive would not affect team members' choices. Chen and Chen (2011) show that group identity fosters coordination through social preferences. Feldhaus et al. (2020) find improved coordination when equality and efficiency align. Similarly, we document in our lab study that leaders' ability to influence teams deteriorates over time when equality and efficiency collide. Corroborating findings by Chmura et al. (2005) and Bland and Nikiforakis (2015), we show that beliefs about others' social preferences affect behavior more than a

[10] See also Andreoni et al. (2021) who study related questions in the context of norm change.

participant's own inequality tolerance. We also contribute to the literature on managerial performance bonuses. Harbring and Irlenbusch (2008) and Balafoutas et al. (2012) show that performance bonuses can lower leaders' cooperativeness. Nikiforakis et al. (2019) show that bonuses can cause leaders to require unfairly high effort levels from their subordinates. Our results uncover a new channel through which managerial bonuses can interfere with team performance. Finally, our results are of interest to scholars of psychological game theory (e.g., Rabin, 1993; Dufwenberg and Kirchsteiger, 2004; Battigalli and Dufwenberg, 2022), as preferences that depend on beliefs provide an alternative explanation for our results.[11]

Pay dispersion between leaders and followers has also received significant attention in the management literature. Empirical studies typically focus on the trade-off between the incentive potential of pay dispersion and its inequity-driven disruptiveness (e.g., Downes and Choi, 2014). Pay dispersion in interdependent work settings has been found to be detrimental to performance (e.g., Bloom, 1999; Guo et al., 2017). Shaw and Gupta (2007) and Trevor et al. (2012) differentiate between pay dispersion explained by productivity-relevant inputs and pay dispersion that an individual's performance cannot explain. The former type of inequality does not affect team collaboration adversely. Our results highlight that risk exposure is another important element in justifying pay dispersion. Ohlmer and Sasson (2018), Long and Nasiry (2020) and Obloj and Zenger (2022) study pay transparency, finding that social comparisons induced by pay transparency do not decrease collaboration. Our results suggest the following mechanism: shared awareness, discussion, and understanding of pay inequalities within a company align beliefs about others' fairness views, reduce strategic uncertainty, and facilitate coordination.

Finally, the literature often distinguishes between two types of leadership: transactional and transformational leaders. Zehnder et al. (2017) and Garretsen et al. (2020) call for studies that connect these leadership types. Economists typically focus on transactional leaders who, ultimately, achieve their goals by shaping followers' incentives. In contrast, transformational leaders make use of their personal abilities to motivate followers, provide them with a shared vision, and give them a sense of identity (e.g., Shamir et al., 1993; Akerlof and Kranton, 2000). We combine transactional and transformational concepts by studying how incentives affect perceptions and shared beliefs. We show that pay differences may interfere with people's identification with a leader and their perceptions of the leader's capacity to cultivate team spirit (see Steffens et al., 2020, for corroborating survey evidence). On the other hand, greater risk exposure conveys leaders more influence over their teams' decisions. We thus provide evidence that charisma and related transformational concepts

[11] The idea is that leaders with significant risk exposure can surprise —or inspire—teams by choosing the risky project. In contrast, leaders with low risk exposure cannot positively surprise followers.

are not only psychological traits that leaders bring with them but also outcomes of the organizational setting and its incentives (e.g., Platow et al., 2006). Pay inequalities must be justified by risk differentials in order not to undermine effective leadership.

6 Conclusion

We study the effects of pay inequality on team production. Specifically, we ask if inequality between leaders and team members undermines the leaders' ability to coordinate teams. We hypothesize that a leader's incentives affect team members' other-regarding preferences and perceptions of the leader, hence lowering or increasing a leader's influence on the team. We also examine if the risks faced by the leader can justify inequality.

We find that team members successfully coordinate around leaders under varied circumstances, including when leaders receive large bonuses. However, leaders' ability to influence team members falters when there is pay inequality and leaders face small strategic risks. The most striking feature of our data is that increased risk exposure by the leader justifies inequality. This is striking because the risk is not realized in equilibrium, that is, there are no lotteries or chance events—all risk is strategic in nature. Heterogeneity in risk tolerance and beliefs about inequality tolerance critically affect team members' willingness to follow a leader.

Our findings have implications for managing organizations. What strategies could limit the adverse effects of inequality on a leader's ability to coordinate teams effectively? First, it is crucial to account for individual heterogeneity. In our experiments, most coordination failures originate from the strategic uncertainty around risk preferences and the beliefs about others' inequality tolerance. Teams who establish a shared awareness of how team members perceive inequality and risk—for instance, through pay transparency (e.g., Long and Nasiry, 2020)—will likely benefit from better coordination.

Second, our findings highlight that steep incentive structures will not undermine effective leadership if other job characteristics justify the inequalities. Incentives and bonuses to motivate high effort by key employees will thus be most effective when coupled with observable, inequality-justifying factors, such as more considerable exposure to strategic risks. Leaders who choose to protect themselves by lowering their accountability and risk exposure will lower their influence on a team, hurting team performance.

Third, we find that US team members are about 6% less likely to follow leaders than European team members. We show that the difference stems from differences in beliefs that others will act to maximize efficiency, i.e., fairness preferences do not explain the cross-continent differences. US teams could have improved their outcomes by trusting more in others' cooperativeness. This requires a shift in common expectations, emphasizing the benefits of promoting cooperative team norms.

We have established our results in an environment with perfectly aligned monetary incentives where the primary obstacles to overcome were strategic uncertainty and its exacerbation by inequality. The documented effects of pay inequality will likely increase when monetary interests are only partially aligned, as is the case in many real-world scenarios (e.g., Zehnder et al., 2017). The role of a leader's risk exposure to justify inequality will be even more important in such scenarios.

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A Online appendix – Experimental instructions

Experimental Instructions
Bonus-SameRisk

SoPHIE LABS 0:13

Your group

You are in a group of three, you and two other participants.

The other persons in your group are chosen randomly among the other study participants. So, the other persons in your group are real and participate in this study just like you.

Continue ...

Your task

Your task will be to choose between two projects: the **blue project** and the **orange project**.

The other two persons in your group will also choose between the **blue** project and the **orange** project.

Continue ...

SoPHIE LABS 0:08

The projects

As will become clear throughout the instructions, the two projects can be thought of as follows:

- Choosing the **blue** **project** is the safe choice. You will earn a certain amount for choosing it, which will not depend on the choices of the other persons in your group.
- Choosing the **orange** **project** is the potentially more rewarding choice. However, it is also more risky because it will produce high earnings *only if everyone else in the group also chooses* **orange**. If another person in your group chooses **blue**, choosing the **orange** project will give you low earnings.

Continue ...

First-mover and other group members

In your group, there will be:

- one *first-mover*
- two *other group members*

You will be assigned one of these roles on the next screen.

Continue ...

Role assignment

You were selected to be one of the two other group members.

Another person was selected to be *the first-mover* of your group.

Continue ...

Timing of actions

The first-mover will make their decision before the two other group members. More precisely, the timing will be as follows:

1. The first-mover will choose between the **blue** project and the **orange** project
2. The other group members will observe the first-mover's decision
3. Each of the other group members will choose between the **blue** project and the **orange** project, independently and without communication

The experiment is being conducted during a 48-hour window. First, we ask the participants who are assigned the role of the first-mover to choose a project, then we ask those who are assigned the role of a group member to choose a project. This allows us to inform the group members of the first-mover's project choice. The timing of actions is common knowledge, so the first-mover will be aware that his/her project choice will be observed by the other group members before they will make their decisions.

Continue ...

Your earnings

We will next explain how the project selection determines your earnings as a group member:

- If you choose the **blue** project, you will earn **$4**, irrespective of the colors chosen by the first-mover and the other group member
- If you choose the **orange** project and *both the first-mover and the other group member also choose* **orange**, you will earn **$4.75**
- If you choose the **orange** project and *at least one other person (the first-mover, the other group member, or both) chooses* **blue**, you will earn **$2.75**

As you can see, choosing the **blue** project gives you a safe payoff of $4, while choosing the **orange** project can give you the highest payoff of $4.75 but only when the others in your group also choose the **orange** project.

Continue ...

Earnings of the first-mover

The earnings of the first-mover are determined as follows:

- If the first-mover chooses the **blue** project, they will earn **$4**, irrespective of the colors chosen by you and the third group member
- If the first-mover chooses the **orange** project and you and the third group member also choose **orange**, the first-mover will earn **$10**
- If the first-mover chooses the **orange** project and at least one other person (i.e., you, the third group member, or both) chooses **blue**, the first-mover will earn **$2.75**

The first-mover thus has a higher potential benefit than the other group members. To see this, note that **the first-mover earns more than twice the amount of you ($10 versus $4.75)** if everyone chooses the **orange** project.

Continue ...

Examples

Before continuing to the comprehension questions, let us look at a few examples. Recall that you have been assigned to be one of the two other group members (not the first-mover).

Example 1: Suppose you choose the **blue** project. In this case, you would earn $4. When you choose **blue**, your earnings are independent of the project colors chosen by the other persons in your group. You can thus think of the **blue** project as the safe choice. Note that if you choose **blue**, it does not imply that others also earn $4 (it depends on their decisions).

Example 2: Suppose the first-mover chooses the **orange** project and, after observing the first-mover's choice, you and the other group member also choose **orange**. Then, you and the other group member would earn $4.75. The first-mover would earn $10. So, if everyone chooses it, the **orange** project yields high returns. The first-mover earns more than twice the amount of the other group members.

Example 3: Suppose the first-mover chooses the **orange** project and, after observing the first-mover's choice, you choose **orange** and the other group member chooses **blue**. Then, you would earn $2.75. The first-mover would also earn $2.75. The other group member who chose **blue** would earn $4. So, if *not* everyone chooses it, the **orange** project yields low returns.

Continue ...

SoPHIE LABS 0:24

Summary

- You are in a group of 3. Each person will choose between the **blue** project and the **orange** project.
- You are **one of the other group members**. You will choose your project color after the first-mover. You and the other group member will know which project the first-mover chose when making your decisions.
- Your earnings will depend on the colors chosen in your group:

	You choose **blue**	You choose **orange** and both others also choose **orange**	You choose **orange** and at least one person chooses **blue**
Earnings if you are the first-mover	**$4**	**$10**	**$2.75**
Earnings if you are another group member	**$4**	**$4.75**	**$2.75**

- Choosing **blue** will guarantee you a payoff of **$4**.
- If you choose **orange** and both other persons in your group also choose **orange**, you will earn:
  - **$10** if you are the first-mover, or **$4.75** if you are another group member
  - As you can see, the first-mover earns more than twice the amount of the other group members if everybody chooses **orange**
- If you choose **orange** and at least one other person in your group chooses **blue**, you will earn:
  - **$2.75** if you are the first-mover, or **$2.75** if you are another group member

Continue ...

SoPHIE LABS

Comprehension Questions I

Solve the following comprehension questions. You have at most two attempts and can only proceed with the study if you answer all questions correctly. Use the "Summary of instructions" button to find the correct answers.

Summary of instructions

A. How many persons are in your group (including you)?

B. Are you the first-mover or one of the two other group members?

- First-mover
- Group member

C. The first-mover chooses their project color before the two other group members. The two other group members will choose their project simultaneously (without observing each other's choice), but they will know which project the first-mover chose.

- True
- False

Submit

SoPHIE LABS

Comprehension Questions II

Solve the following comprehension questions. You have at most two attempts and can only proceed with the study if you answer all questions correctly. Use the "Summary of instructions" button to find the correct answers.

Summary of instructions

A. What will your earnings be (in $) if you choose **blue**?

B. Suppose everybody in the group chooses **orange**. What would your earnings be (in $)?

C. Suppose everybody in the group chooses **orange**. What would the first-mover's earnings be (in $)?

D. Suppose you choose **orange**, and at least one person in your group chooses **blue**. What would your earnings be (in $)?

E. Suppose the first-mover chooses **orange**, and at least one person in your group chooses **blue**. What would the first-mover's earnings be (in $)?

Submit

SoPHIE LABS

This concludes the instructions and comprehension questions. On the next two screens, we will tell you which project the first-mover chose and you will choose your project color.

Continue ...

First-mover's project choice

Before you choose your project, we will tell you which project the first-mover chose:

The first-mover chose the blue project.

Continue ...

SoPHIE LABS 0:04

DECISION

Summary of instructions

	Chooses **blue**	Chooses **orange** and both others also choose **orange**	Chooses **orange** and at least one person chooses **blue**
Earnings if first-mover	**$4**	**$10**	**$2.75**
Earnings if group member (you)	**$4**	**$4.75**	**$2.75**

The first-mover chose the **blue** project.

You are one of the two other group members. It is now the group members' turn to choose a project color. You choose simultaneously with the other group member and you don't know if they will choose **blue** or **orange**.

Please choose your project:

- **I choose blue**
- **I choose orange**

Submit

SoPHIE LABS 0:05

Choose a lottery

Please select one of the following six lotteries. Each lottery has a different chance of winning and a different winning amount. For the lottery you select, the computer will determine whether you will win or not according to the chance of winning. If you win, the winning amount for the chosen lottery will be added to your bonus payments. If you don't win, your earnings remain unchanged. Choose your preferred lottery:

- ○ **Lottery 1: a 8 in 10 chance to win $0.40**
- ○ **Lottery 2: a 7 in 10 chance to win $0.60**
- ○ **Lottery 3: a 6 in 10 chance to win $0.80**
- ○ **Lottery 4: a 5 in 10 chance to win $1.00**
- ○ **Lottery 5: a 4 in 10 chance to win $1.20**
- ○ **Lottery 6: a 3 in 10 chance to win $1.40**

Submit ...

SoPHIE LABS 0:03

Please answer the question below

How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?

not at all willing to take risks										very willing to take risks
○	○	○	○	○	○	○	○	○	○	○
0	1	2	3	4	5	6	7	8	9	10

Submit

SoPHIE LABS 0:08

Choose a distribution

Please choose one of the following two payment distributions for you and another study participant. The other study participant is randomly chosen among all study participants. The distribution you select will be implemented with a probability of 50%, in which case you and the other participant will receive the selected payments.

○ **Distribution 1: You receive $0.475, and the other person receives $1**

○ **Distribution 2: You receive $0.4, and the other person receives $0.4**

Submit

SoPHIE LABS 0:04

On the previous screen, about 100 study participants have chosen a payment distribution for themselves and another person.

Distribution 1: The participant selects that they receive $0.475 and the other person receives $1

Distribution 2: The participant selects that they receive $0.4 and the other person receives $0.4

What do you think is the percentage of participants who choose Distribution 1?

My best guess is that **55**% of the other participants chose Distribution 1 on the previous screen.

You will receive $1 if the difference between your estimate and the true percentage is 5% or less.

Submit

Powered by SoPHIE LABS

SoPHIE LABS 0:03

Please answer the question below

How do you see yourself: Are you a person that is willing to accept inequalities, or do you prefer to avoid inequalities?

not at all willing to accept inequalities										very willing to accept inequalities
○	○	○	○	○	○	○	○	○	○	○
0	1	2	3	4	5	6	7	8	9	10

Submit

Experimental Instructions
Bonus-MoreRisk
(only the screens that differ from before)

Earnings of the first-mover

The earnings of the first-mover are determined as follows:

- If the first-mover chooses the **blue** project, they will earn **$4**, irrespective of the colors chosen by you and the third group member
- If the first-mover chooses the **orange** project and you and the third group member also choose **orange**, the first-mover will earn **$10**
- If the first-mover chooses the **orange** project and at least one other person (i.e., you, the third group member, or both) chooses **blue**, the first-mover will earn **$0**

The first-mover thus has a higher potential benefit than the other group members, but he/she also faces a larger risk. To see this, note that **the first-mover earns more than twice the amount of you ($10 versus $4.75)** if everyone chooses the **orange** project. However, in contrast to you, **the first-mover also faces the risk of earning $0** (no payment in this part of the study) when choosing **orange** and another group member chooses **blue**.

Continue ...

Examples

Before continuing to the comprehension questions, let us look at a few examples. Recall that you have been assigned to be one of the two other group members (not the first-mover).

Example 1: Suppose you choose the **blue** project. In this case, you would earn $4. When you choose **blue**, your earnings are independent of the project colors chosen by the other persons in your group. You can thus think of the **blue** project as the safe choice. Note that if you choose **blue**, it does not imply that others also earn $4 (it depends on their decisions).

Example 2: Suppose the first-mover chooses the **orange** project and, after observing the first-mover's choice, you and the other group member also choose **orange**. Then, you and the other group member would earn $4.75. The first-mover would earn $10. So, if everyone chooses it, the **orange** project yields high returns. The first-mover earns more than twice the amount of the other group members.

Example 3: Suppose the first-mover chooses the **orange** project and, after observing the first-mover's choice, you choose **orange** and the other group member chooses **blue**. Then, you would earn $2.75. The first-mover would earn $0. The other group member who chose **blue** would earn $4. So, if *not* everyone chooses it, the **orange** project yields low returns. This is particularly true for the first-mover who faces the risk of earning $0 (no payment in this part of the study), a risk the other group members don't face.

Continue ...

SoPHIE LABS 0:22

Summary

- You are in a group of 3. Each person will choose between the **blue** project and the **orange** project.
- You are **one of the other group members**. You will choose your project color after the first-mover. You and the other group member will know which project the first-mover chose when making your decisions.
- Your earnings will depend on the colors chosen in your group:

	You choose **blue**	You choose **orange** and both others also choose **orange**	You choose **orange** and at least one person chooses **blue**
Earnings if you are the first-mover	**$4**	**$10**	**$0**
Earnings if you are another group member	**$4**	**$4.75**	**$2.75**

- Choosing **blue** will guarantee you a payoff of **$4**.
- If you choose **orange** and both other persons in your group also choose **orange**, you will earn:
  - **$10** if you are the first-mover, or **$4.75** if you are another group member
  - As you can see, the first-mover earns more than twice the amount of the other group members if everybody chooses **orange**
- If you choose **orange** and at least one other person in your group chooses **blue**, you will earn:
  - **$0** if you are the first-mover, or **$2.75** if you are another group member
  - As you can see, the first-mover faces a larger risk than the other group members because he/she earns no payoff ($0) in this part of the study if another person chooses **blue**

Continue ...

SoPHIE LABS

First-mover's project choice

Before you choose your project, we will tell you which project the first-mover chose:

The first-mover chose the orange project.

Continue ...

SoPHIE LABS 0:06

DECISION

Summary of instructions

	Chooses **blue**	Chooses **orange** and both others also choose **orange**	Chooses **orange** and at least one person chooses **blue**
Earnings if first-mover	**$4**	**$10**	**$0**
Earnings if group member (you)	**$4**	**$4.75**	**$2.75**

The first-mover chose the **orange** project.

You are one of the two other group members. It is now the group members' turn to choose a project color. You choose simultaneously with the other group member and you don't know if they will choose **blue** or **orange**.

Please choose your project:

- (•) **I choose blue**
- ( ) **I choose orange**

Submit

B Online appendix – Additional analyses

B.1 Robustness check of behavioral measures

Below we reproduce the OLS regressions of table 3 in the paper separately for the incentivized behavioral measures (i.e., the lottery choice and the distribution choice) and the self-reported measures of risk and inequality tolerance. The results remain unchanged; that is, risk tolerance and beliefs about others' inequality tolerance increase team members' probability of following leaders in choosing the risky project. A person's own inequality tolerance is insignificant.

Table 6: OLS Regression – Incentivized versus self-reported measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
NoBonus-LessRisk	0.427***		0.418***	0.413***		0.400***	0.396***
	(0.044)		(0.044)	(0.044)		(0.044)	(0.044)
NoBonus-SameRisk	0.432***		0.411***	0.405***		0.405***	0.398***
	(0.045)		(0.045)	(0.045)		(0.044)	(0.044)
Bonus-LessRisk	0.336***		0.324***	0.318***		0.314***	0.308***
	(0.047)		(0.046)	(0.047)		(0.046)	(0.046)
Bonus-SameRisk	0.446***		0.423***	0.417***		0.405***	0.398***
	(0.044)		(0.045)	(0.045)		(0.045)	(0.045)
Bonus-MoreRisk	0.498***		0.481***	0.477***		0.463***	0.459***
	(0.038)		(0.038)	(0.039)		(0.039)	(0.039)
Lottery choice		0.157***	0.174***	0.169***			
		(0.050)	(0.047)	(0.047)			
Distribution choice		0.054	0.036	0.033			
		(0.040)	(0.037)	(0.037)			
Belief ineq. tolerance		0.212***	0.156***	0.170***	0.271***	0.196***	0.211***
		(0.063)	(0.059)	(0.059)	(0.047)	(0.046)	(0.048)
US				-0.057**			-0.062**
				(0.027)			(0.027)
Self-reported risk tolerance					0.373***	0.318***	0.335***
					(0.061)	(0.059)	(0.060)
Self-reported ineq. tolerance					-0.055	-0.039	-0.014
					(0.054)	(0.050)	(0.051)
Constant	0.259***	0.373***	0.065	0.132	0.285***	0.017	0.095
	(0.029)	(0.041)	(0.045)	(0.113)	(0.045)	(0.046)	(0.111)
Observations	1300	1300	1300	1300	1300	1300	1300
R^2	0.125	0.034	0.148	0.156	0.052	0.158	0.169

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

B.2 Order of elicitation tasks

We randomized whether participants first completed the risk and inequality preference elicitation tasks or the team production game. The table below reproduces table 3 of the manuscript separately for both orders. Models (1) to (4) contain the data from subjects who first did the elicitation tasks; models (5) to (8) the subjects who first played the team production game.

Table 7: OSL regressions – Order effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NoBonus-LessRisk	0.411***		0.396***	0.385***	0.426***		0.422***	0.420***
	(0.066)		(0.066)	(0.067)	(0.060)		(0.060)	(0.060)
NoBonus-SameRisk	0.438***		0.409***	0.393***	0.427***		0.415***	0.419***
	(0.061)		(0.060)	(0.061)	(0.067)		(0.066)	(0.065)
Bonus-LessRisk	0.391***		0.364***	0.355***	0.272***		0.273***	0.278***
	(0.063)		(0.063)	(0.063)	(0.070)		(0.067)	(0.067)
Bonus-SameRisk	0.473***		0.435***	0.416***	0.417***		0.388***	0.394***
	(0.062)		(0.064)	(0.064)	(0.064)		(0.063)	(0.063)
Bonus-MoreRisk	0.520***		0.483***	0.472***	0.474***		0.473***	0.480***
	(0.052)		(0.054)	(0.054)	(0.056)		(0.055)	(0.055)
Risk tolerant		0.261***	0.211**	0.216**		0.473***	0.503***	0.508***
		(0.094)	(0.088)	(0.089)		(0.097)	(0.093)	(0.093)
Inequality tolerant		0.075	0.049	0.049		-0.003	-0.006	0.010
		(0.084)	(0.078)	(0.080)		(0.088)	(0.078)	(0.080)
Belief ineq. tolerance		0.277***	0.211***	0.213***		0.225**	0.149*	0.165*
		(0.081)	(0.077)	(0.077)		(0.090)	(0.083)	(0.084)
US				-0.086**				-0.029
				(0.038)				(0.038)
Constant	0.235***	0.256***	-0.009	-0.162	0.286***	0.260***	-0.048	0.256
	(0.039)	(0.066)	(0.066)	(0.160)	(0.044)	(0.066)	(0.069)	(0.173)
First part	elicitation	elicitation	elicitation	elicitation	main	main	main	main
Observations	645	645	645	645	655	655	655	655
R^2	0.139	0.049	0.166	0.177	0.115	0.054	0.162	0.180

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The main results are order-independent. One difference is that the willingness of team members to follow the leader in Bonus-LessRisk is lower when the elicitation tasks come second. That is, exposing subjects to the elicitation tasks makes them a bit more accepting of inequality in the team production game. If anything, the results reported in the study thus underestimate the effect of bonuses and the inequality-justifying effect of risk exposure compared with the case where subjects face the main game without any prior tasks. This is because the more relevant order for the behavior in the team production task is the one where the elicitation tasks come second. We implemented the elicitation tasks first for 50% of the subjects to be certain that the effects of the elicited measures do not arise due to playing different treatments in the main game.

B.3 Further comparisons of US and European samples

The table below splits the main regressions shown in table 3 of the paper by US and European participants. The first three regression models include only US participants; regressions (4) to (6) include only European participants. As already shown in the manuscript, the treatment effects are similar across subsamples: the willingness to follow leaders is lowest in Bonus-LessRisk, and adding risk exposure considerably alleviates this effect. The main difference is that European subjects are generally more willing to follow leaders, as reflected by the higher constant in the regression model (4) compared to model (1). In addition, one can see a significant effect of inequality tolerance for the European sample, whereas this variable was insignificant in the pooled analysis or when considering only the US sample. Beliefs about inequality still play a role for Europeans, but the effects are more noisy. Beliefs play a more critical role in the behavior of US Americans. We leave further exploration of these potentially important differences for future research.

Table 8: OLS regression – US versus European sample

	(1)	(2)	(3)	(4)	(5)	(6)
NoBonus-LessRisk	0.448***		0.442***	0.383***		0.370***
	(0.057)		(0.056)	(0.069)		(0.070)
NoBonus-SameRisk	0.421***		0.411***	0.405***		0.376***
	(0.063)		(0.060)	(0.068)		(0.068)
Bonus-LessRisk	0.333***		0.335***	0.308***		0.285***
	(0.063)		(0.060)	(0.071)		(0.071)
Bonus-SameRisk	0.460***		0.444***	0.405***		0.366***
	(0.059)		(0.060)	(0.069)		(0.069)
Bonus-MoreRisk	0.524***		0.512***	0.443***		0.419***
	(0.050)		(0.049)	(0.061)		(0.062)
Risk tolerant		0.378***	0.396***		0.314***	0.270***
		(0.091)	(0.085)		(0.101)	(0.099)
Inequality tolerant		-0.097	-0.113		0.183**	0.179**
		(0.082)	(0.074)		(0.090)	(0.084)
Belief ineq. tolerance		0.298***	0.219***		0.154*	0.111
		(0.082)	(0.077)		(0.086)	(0.082)
Constant	0.210***	0.261***	-0.043	0.337***	0.301***	0.036
	(0.035)	(0.058)	(0.057)	(0.051)	(0.078)	(0.084)
Region	US	US	US	Europe	Europe	Europe
Observations	683	683	683	617	617	617
R^2	0.145	0.045	0.181	0.094	0.047	0.129

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

B.4 Leader behavior and team outcomes

The paper focuses on team members' behavior, as we are interested in how team members change their behavior in response to changes in the leaders' incentives. Nonetheless, the following observations on leaders and team outcomes are worth making.

Interpreting team outcomes requires some caution. First, team outcomes depend on a leader's decision on whether or not to initiate the risky project. Theoretically, a reasonable assumption is that leaders will anticipate the equilibrium among team members and respond optimally. Second, the welfare implications will likely depend on the chosen parameters, e.g., whether it is more important to avoid miscoordination altogether or allow for some miscoordination to increase the probability of successful risky projects. Our design, hypotheses, and results deliberately focus on the team members' behavior conditional on leader choices, which avoids this indeterminacy. Nonetheless, we now present some generalizable patterns about team outcomes.

We find that leader bonuses increase and risk exposure decreases the probability of leaders choosing the risky project. Leaders' probability of choosing the risky project is 83.3% in NoBonus-LessRisk, 38.9% in NoBonus-SameRisk, 96.3% in Bonus-LessRisk, 78.4% in Bonus-SameRisk, and 67.2% in Bonus-MoreRisk. These differences are large and significant. Thus, leaders seem relatively unafraid of the possibility that their bonuses will discourage team members from following their lead. We also checked the effect of leaders' risk and fairness attitudes. Risk and inequality-tolerant leaders have a higher probability of initiating the risky project than their less risk and inequality-tolerant counterparts. In contrast, leaders' beliefs about others' inequality tolerance do not affect their project choices, indicating again that, at least in our setting, leaders pay limited attention to team members' strategic uncertainty when choosing a project.

The outcome distributions in Table 2 show that the miscoordination rates differ between treatments. In Bonus-LessRisk, there is a large discrepancy between what leaders want—almost all leaders initiate the risky project—and what team members do, as many of the latter opt for the safe project. This discrepancy causes coordination failure in 62.7% of the teams. Miscoordination becomes less frequent as the gap between leaders and team members in their willingness to choose the risky project diminishes. The miscoordination rate is 39.4% in Bonus-SameRisk, 32.8% in Bonus-MoreRisk, and 20.3% in NoBonus-SameRisk. Team members' payoff gains relative to the safe project are therefore increasing in leaders' risk exposure from -5% in Bonus-LessRisk to 11.8% in Bonus-SameRisk (Wilcoxon ranksum, $p < .001$) and 14.4% in Bonus-MoreRisk ($p < .001$). The generalizable insight arising from these observations is that teams will better coordinate if leaders and team members face similar trade-offs between projects.

B.5 Subtreatments of Bonus-MoreRisk

Treatment Bonus-MoreRisk was divided into two subtreatments. In the first one, we assigned roles exogenously, as in all other treatments. This treatment has 297 subjects, 213 team members and 84 leaders. In the second one, the participants could indicate preferences over the leader and team member roles after reading the instructions and being aware of the game's payoffs and timing. If none of the three participants in a group preferred the leader role, they played the game without a leader. If exactly one participant preferred the leader role, that participant became the group's leader. If more than one participant preferred the leader role, we randomly selected the leader among the interested parties. We implemented the treatment to examine leader emergence. This treatment has 288 subjects, 192 team members and 96 leaders.

Treatment Bonus-MoreRisk is used to test Hypothesis 3 in the manuscript on the question of whether risk exposure succeeds in justifying the leader bonuses. Recall that in Bonus-LessRisk, the team members' probability of following the leader in choosing the risky project was 59.5%. In the Bonus-MoreRisk subtreatment with exogenous roles, the probability is 72.9%, significantly different from Bonus-LessRisk (Wilcoxon ranksum, $p = .007$). In the Bonus-MoreRisk subtreatment with endogenous roles, the probability is 79.4%, also significantly different from Bonus-LessRisk (Wilcoxon ranksum, $p < .001$). The two subtreatments are not significantly different (Wilcoxon ranksum, $p = .182$). Thus, looking at the subtreatments of Bonus-MoreRisk separately provides independent evidence supporting Hypothesis 3, which states that higher risk exposure by leaders increases leader effectiveness.

We next turn to leader emergence, which in our setting boils down to the question of who chose the leader role in the corresponding subtreatment of Bonus-MoreRisk. We find that the willingness to assume the leader rather than the team member role is a key dimension along which Europeans and US Americans in our sample differ: US participants chose the leader role more often than Europeans (71.8% versus 60.8%, Wilcoxon ranksum, $p = .049$). Further, beliefs about others' inequality tolerance are the dominant factor in choosing the leadership role. Intriguingly, believing that others are more inequality-tolerant significantly reduces the probability of choosing the leader role: 60.9% for participants with above-median beliefs on inequality tolerance versus 73.7% for participants with below-median beliefs (Wilcoxon ranksum, $p = .021$). Indeed, US participants are more likely to hold below-median beliefs. Taken together, US participants likely want to assume the leader role more often than Europeans because they believe other leaders would be reluctant to initiate the risky project. That is, US participants have a greater desire to ensure that the leader role will be assumed by someone who focuses on efficiency rather than equality.