

An Experimental Study on Potential Whistleblowing Intentions in Conspiracy : A Dilemma of Fairness and the Risk of Reporting

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ABSTRACT

We experimentally examine how the power distance in a conspiracy affects the potential whistleblowing motivation of those who are illegally involved. To test our hypotheses, we employed a 2 (wrongdoer) x 2 (power distance) between-participants experiment using the Amazon Mechanical Turk platform. We examined the mechanism of whistleblowing in a more realistic setting through matching the conspiracy and power distance, which were treated separately in previous studies. The results reveal that a fairness-risk of reporting tradeoff occurs, especially in the conspiracy relationship between a superior and their subordinate. Our study sheds light on the importance of designing an incentive mechanism that lowers the risk of reporting and inspires fairness against conspiracies.

INTRODUCTION

In recent years, fraud and other forms of unethical behavior in organizations have received significant attention in accounting and business ethics literature. Dyck, Morse, and Zingales (2010) demonstrate that fraud detection relies on not only standard corporate governance actors (investors, SEC, and auditors) but also several nontraditional players (employees, media,

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and industry regulators). In accounting scandals such as Enron, WorldCom, and Nissan, whistleblowing has played an important role in fraud detection. The Dodd—Frank Act, which came into effect in 2010, established a whistleblower program that enables the U.S. Securities and Exchange Commission (SEC) to pay an award (10-30 percent of the amount recovered) to whistleblowers who provide original information about a violation.

Carcello, Hermanson, and Ye (2011) suggest that research on the incentive mechanism of whistleblowing is a fertile area of corporate governance inquiry that has yet to be substantively explored. In this regard, Dyck et al. (2010) demonstrate that monetary incentives help explain employee whistleblowing, whereas reputational incentives in general are weak. Alternatively, Waytz, Dungan, and Young (2013) experimentally reveal that a fairness—loyalty tradeoff predicts people’s willingness to “blow the whistle.” Moreover, Wainberg and Perreault (2016) present experimental evidence that the risks that may result from negative reporting affect auditors’ willingness to blow the whistle. In this regard, previous studies have examined a variety of factors as incentives for whistleblowing and many assume that a whistleblower is not illegally involved (e.g., external auditors). In reality, however, the following two issues are important. First, many fraudulent activities are conducted within conspiracies, and a conspirator may become a whistleblower. We, therefore, need to focus on the incentive for them to provide a report to a hotline. Second, power distance among wrongdoers is an important factor. Gao, Greenberg, and Wong (2015) experimentally demonstrate that whistleblowing intentions are lower when the wrongdoer is in a powerful organizational position, although they focus on the relationship between the wrongdoer and non-wrongdoer (whistleblower). However, to the best of our knowledge, there are no previous studies focusing on the power distance in conspiracies.

We experimentally examine how the power distance in a conspiracy affects the potential whistleblowing motivation of those who are illegally involved. We investigate the incentive mechanism of the potential whistleblowing in a more realistic environment by matching the conspiracy and power distance, which have been treated separately in previous studies. We especially focus on non-monetary incentives and the tradeoff between fairness and the risk of reporting (Waytz et al. 2013 ; Wainberg and Perreault 2016). This is because related literature on experimental economics reveals that non-monetary incentives such as fairness, loyalty, and risk are important factors in economic behavior (e.g., Fehr, Kirchsteiger, and Riedl 1993 ; Fehr and Schmidt 1999 ; Akerlof and Kranton 2010 ; Koszegi 2014). We hypothesize that a fairness-risk of reporting tradeoff occurs, especially in the conspiracy relationship between a superior and their subordinate.

We adopt an experimental approach to examine the effect of the power distance in a conspiracy on the potential whistleblowing motivation. Participants were 200 individuals recruited from the Amazon Mechanical Turk (AMT) platform. AMT is becoming an increasingly popular source for recruiting participants in academic studies for accounting researchers (e.g., Rennekamp 2012 ; Koonce, Miller, and Winchel 2015 ; Asay, Elliott, and Rennekamp 2017 ; Asay 2018 ; Asay and Hales 2018 ; Buchheit et al. 2018 ; Elliott, Grant, and Hodge 2018). To test our hypotheses, we employed a 2 (wrongdoer) x 2 (power distance) between-participants experiment, manipulating the whistleblower's involvement in the fraud (conspiracy vs. single) and the power distance (boss vs. colleague). Results support our predictions and indicate that a fairness-risk of reporting tradeoff occurs, especially in the conspiracy relationship between a superior and their subordinate.

This study makes the following contributions. First, it contributes to the recent literature on whistleblowing and corporate governance (e.g., Carcello et al. 2011) by examining the incentive mechanism in a more realistic setting through matching the conspiracy and power distance. Second, our study also extends institutional design for fraud detection. Our results shed light on a fairness-risk of reporting tradeoff, especially in the conspiracy relationship between a superior and their subordinate. This study can therefore help design a mechanism that lowers the risk of reporting and inspires fairness against conspiracies.

The remainder of this paper is organized as follows. Section II reviews the related literature and presents our hypotheses. In Section III, we explain the experimental design employed to test our hypotheses. Section IV describes our empirical results and Section V discusses the results and concludes the paper.

RELATED LITERATURE AND HYPOTHESES

As a fertile area of corporate governance inquiry, Carcello et al. (2011) suggest that research on the incentive mechanism of whistleblowing has yet to be substantively explored. In this regard, Dyck et al. (2010) examined all reported fraud cases in large U.S. companies from 1996 to 2004 and found that monetary incentives help explain employee whistleblowing, whereas reputational incentives are, in general, weak. Alternatively, Waytz et al. (2013) experimentally reveal that a fairness—loyalty tradeoff predicts people's willingness to blow the whistle. Moreover, Wainberg and Perreault (2016) present experimental evidence that the risks that may result from negative reporting affect auditors' willingness to blow the whistle. In previous research, a variety of factors have been examined as incentives for whistleblowing

and many studies assume that a whistleblower is not illegally involved (e.g., auditor).

The following two issues are important. First, many fraudulent activities are conducted within conspiracies and a conspirator may become a whistleblower. We therefore need to focus on the incentive for them to provide a report to a hotline. Second, power distance among wrongdoers is an important factor. Taylor and Curtis (2013) and Gao et al. (2015) experimentally demonstrate that whistleblowing intentions are lower when the wrongdoer is in a powerful organizational position. However, these studies focus on the relationship between the wrongdoer and non-wrongdoer (whistleblower). However, no previous studies focus on the power distance in conspiracies. The current study, therefore, investigates how the power distance in conspiracies affects the potential whistleblowing motivation of those who are illegally involved.

Wrongdoer

The whistleblowing process based on Miceli and Near's (1992) model treats whistleblowers as only an individual witnessing misconduct. However, a conspirator may be a potential whistleblower. In reality, most major organizational frauds that have occurred in recent decades, such as Enron, WorldCom, Tyco, and HealthSouth, have been committed through the collusion of multiple employees (Free and Murphy 2015). Albrecht et al. (2015) suggest that it is necessary to understand the relationship between the initial perpetrator of a fraudulent act and any additional conspirators. Additionally, Gao and Brink (2017) also argue that future accounting research on whistleblowing needs to investigate collusion in fraud. In short, any of the multiple wrongdoers (e.g., additional conspirators) can be a potential whistleblower. We, therefore, examine the conspirator's motivation, focusing on the whistleblower involved before they realized fraudulent activity was occurring.

We particularly focus on non-monetary incentives such as fairness, loyalty, and risk because related literature on experimental economics reveal that these incentives are more important factors in economic behavior than monetary ones (e.g., Fehr et al. 1993 ; Fehr and Schmidt 1999 ; Akerlof and Kranton 2010 ; Koszegi 2014). There are various psychological determinants of whistleblowing. For example, Waytz et al. (2013) reveal that people's willingness to blow the whistle can be predicted by the fairness—loyalty tradeoff. On the one hand, whistleblowers may act in the service of fairness and justice when exposing corporate wrongdoing (Near and Miceli 1985 ; Miceli and Near 1992). On the other hand, depending on the relationship between the offender and whistleblower, whistleblowing may constitute an act of disloyalty. Moreover, the perceived risk of reporting affects whistleblowing intention

(Wainberg and Perreault 2016 ; Young 2017).

We assume that the whistleblower who was involved in fraud before they were aware of it feels a strong sense of fairness resulting from perceived innocence and a desire to reveal the truth. Thus, we formulate the following hypothesis :

H 1 : The likelihood of whistleblowing will be positively associated with fairness when the whistleblower is involved in fraud before they were aware of it.

Power Distance in Conspiracy

Power distance is a relative measure of the distance in organizational position between two parties, and in our case, between the wrongdoer and potential whistleblower involved in the fraud. This study examines how the power distance in a conspiracy affects the potential whistleblowing motivation of those who are illegally involved in fraud.

There may be a fear of superiors based on the whistleblower's position within the firm and their importance in the evaluation and promotion processes. In contrast, respect for peers is relatively less important. Therefore, superiors have strong power over a potential whistleblower.

A powerful wrongdoer (if the superior is a wrongdoer) is more likely to be protected by an organization due to its dependence on the wrongdoer, and this reduces the whistleblower's power (Miceli and Near 1992 ; Rehg et al. 2008). A powerful wrongdoer can also increase perceptions of the threat of retaliation, thereby influencing the whistleblowing decision. Gao et al. (2015) examine whistleblowing intentions among lower-tier employees and find that internal whistleblowing intentions are lower when the wrongdoer is powerful, such as when the wrongdoer is in an upper-level organizational position. Taylor and Curtis (2013) investigate auditors' likelihood of reporting observations of wrongdoing and find that they are less likely to report on their superiors than on their peers. Taylor and Curtis (2013) also discuss power distance in terms of obedience pressure. Several types of social influence pressures, such as the aforementioned, can affect professional judgment and decision behavior (Lord and DeZoort 2001), particularly when the wrongdoer is a superior.

Given the previous literature on power distance, we propose that a whistleblower involved in a superior's wrongdoing will perceive an increased risk of reporting over that of being involved in a colleague's wrongdoing. We, therefore, hypothesize that a fairness-risk of reporting tradeoff occurs especially in the conspiracy relationship between a superior and their subordinate. Accordingly, we formulate the following hypothesis :

H 2 : Under a conspiracy, the likelihood of whistleblowing will be negatively associated with the risk of reporting when the wrongdoer is a boss (superior), rather than when they are a colleague.

EXPERIMENTAL DESIGN

Participants

Participants included 200 individuals recruited from the AMT platform in exchange for a \$1 payment. The experiment was conducted in December 2018.¹

AMT is an Internet crowdsourcing marketplace that allows “requesters” to pay “workers” to perform various tasks. AMT is becoming an increasingly popular source for recruiting participants in academic studies for both social scientists (Paolacci, Chandler, and Ipeirotis 2010 ; Buhrmester, Kwang, and Gosling 2011) and accounting researchers (e.g., Rennekamp 2012 ; Koonce et al. 2015 ; Asay et al. 2017 ; Asay 2018 ; Asay and Hales 2018 ; Buchheit et al. 2018 ; Elliott et al. 2018), because the subject pool is large, readily accessible, and representative of the U.S. population. To receive compensation for completing tasks, workers must have their work approved by requesters through a review and rating system that incentivizes workers to pay careful attention to the tasks. Recent research suggests that AMT workers make the same level of effort as more traditional participants (Farrell, Grenier, and Leiby 2017). Most participants took approximately three minutes to complete the study, meaning their effective hourly wage for participating is \$20 per hour.

Libby, Bloomfield, and Nelson (2002) suggest that participant selection should be driven by the demands and goals of the experiment. As a baseline requirement, we specifically recruited participants who (1) live in the U.S., (2) have full-time (35+ hours per week) work experience, and (3) have a U.S. bachelor’s degree. We collected additional background information on participants to support their use in our experiment. The average participant was 40.17 years old ($SD = 10.61$), with an average full-time work experience of 19.45 years, and 53.0 percent were female.² These demographic factors did not differ significantly across experimental groups.

1 The experiments in this study were approved by the Institutional Review Board (IRB) for Human Participants at the Osaka City university.

2 Many studies (e.g., Elliott et al. 2018) stress the need for screening questions to disqualify MTurk respondents who quickly complete tasks for compensation, compromising data quality. Although our initial sample included 200 Amazon Turk workers, as we will discuss in section IV, we removed 16 participants.

Design and Manipulations

The experimental scenario we used is based on that in Berger, Perreault, and Wainberg (2017), who describe the fraud case of a hypothetical company (see the Appendix). Participants were presented with a brief description of Alpha, Inc., a company that manufactures apparel and uniforms for police, fire, and military personnel. The description explained that the company received a large contract to produce uniforms for a firm, which contained an explicit requirement that the company only use fabric manufactured in North America. The instrument then described the responsibilities of Pat Smith, a staff accountant responsible for processing the company's accounts payable transactions. The description noted that while performing his normal duties, Pat encountered evidence that the company is using cheaper fabric from Central America to produce the uniforms. Further, it was also explained that although purchasing this cheaper fabric decreases Alpha's manufacturing costs, it is a clear and fraudulent violation of the contract. Finally, the instrument stated that, to date, this contract violation has allowed Alpha to fraudulently earn additional profits. After reading the information, participants were presented with a description of an anonymous whistleblower reporting hotline administered by the company.

To test our hypotheses, we employed a 2 (wrongdoer) x 2 (power distance) between-participants experiment, manipulating the whistleblower's involvement in the fraud (conspiracy vs. single) and the power distance (boss vs. colleague). The experimental design is presented in Table 1.

Power distance was manipulated as follows. In the *boss* conditions (*Boss—Conspiracy condition* and *Boss—Single condition*), the wrongdoer was described as Pat's boss. In the *colleague* conditions (*Colleague—Conspiracy condition* and *Colleague—Single condition*), the description noted that the wrongdoer was Pat's colleague.

The wrongdoer was manipulated as follows. In the *conspiracy* conditions (*Boss—Conspiracy condition* and *Colleague—Conspiracy condition*), the description noted that Pat has also become involved in the fraud. In the *single* conditions (*Boss—Single condition* and

TABLE 1. Experimental Design

		Power Distance	
		Boss	Colleague
Wrongdoer	Conspiracy	<i>Boss—Conspiracy condition</i>	<i>Colleague—Conspiracy condition</i>
	Single	<i>Boss—Single condition</i>	<i>Colleague—Single condition</i>

For the experimental design, we employed a 2 (wrongdoer) x 2 (power distance) between-participants experiment, manipulating the wrongdoer (conspiracy vs. single) and the power distance (boss vs. colleague).

Colleague—Single condition), this factor was not included.

Task and Procedure

Every participant read the case scenario (see the Appendix). After reading the case, they were asked to indicate the probability that the would-be whistleblower would call the hotline to report the wrongdoing. At the end of the task, participants responded to manipulation check questions and provided demographic information.

Our primary dependent variable is the whistleblowing intention, using the available hotline (Taylor and Curtis 2013 ; Gao et al. 2015). Using a scale of 0-100, where 0 is “very unlikely” and 100 is “very likely,” participants were asked to assess the probability the potential whistleblower (Pat) would call the hotline to report the wrongdoing. Previous studies indicate that when making morally intense judgments, decision makers consistently overestimate the likelihood that they will act in an ethical manner, whereas their predictions of the behavior of others are significantly more accurate (e.g., Gao et al. 2015 ; Berger et al. 2017). This phenomenon is known as the social desirability bias, which previous studies reveal is more likely when behavior intention items are phrased in the first person rather than in the third person. To address this issue, our dependent measures do not assess the likelihood that the participants would choose to report to the whistleblowing hotline but rather ask them to consider how a third party would approach the situation. This follows the example in previous experimental studies that examine whistleblower reporting decisions, wherein participants are required to take a third-person perspective (e.g., Seifert et al. 2010 ; Wainberg and Perreault 2016). We therefore phrased the questions in the third person and asked participants to indicate the target person’s intention to report the potential wrongdoing.

We also measure three items through direct questions that ask the participants to assess their valuation of fairness, loyalty, and the risk of reporting (e.g., Waytz et al. 2013 ; Wainberg and Perreault 2016). The first measure consists of a seven-point Likert scale item assessing the valuation of *fairness* (e.g., Waytz et al. 2013). This is measured through a question that asks participants to indicate their agreement with the statement, “When Pat decides whether to report, what is the likelihood that he considers the fairness of doing so (whether he believes that whistleblowing is a fair act)?” (1 = very unlikely, 7 = very likely).

The second measure consists of a seven-point Likert scale item assessing the valuation of *loyalty* (e.g., Waytz et al. 2013). This is measured through a question that asks participants to indicate their agreement with the statement, “When Pat decides whether to report, what is the likelihood that he considers loyalty (whether he believes that whistleblowing is a disloyal

act)?” (1 = very unlikely, 7 = very likely).

The third measure consists of a seven-point Likert scale item assessing the valuation of *risk of reporting* (e.g., Wainberg and Perreault 2016). This is measured through a question that asks participants to indicate their agreement with the statement, “When Pat decides whether to report, what is the likelihood that he considers the risk of reporting (whether he believes that reporting Alpha’s wrongdoing to the hotline is risky and will likely harm Pat’s career at Alpha)?” (1 = very unlikely, 7 = very likely).

RESULTS

Manipulation Checks and Descriptive Statistics

To test the effectiveness of our experimental manipulation and controls, participants were asked two check questions : “Who is involved in this wrongdoing?” (Q 5) and “Please select ‘3’ among the following radio buttons” (Q 6). Of the subjects, 185 correctly answered Q 5 and 199 correctly answered Q 6. Therefore, after excluding those who answered either of these

TABLE 2. Descriptive Statistics and ANOVA of Likelihood of Whistleblowing

Panel A : Likelihood of Whistleblowing—Mean, (Standard Error), and [Median]

Wrongdoer	Power Distance		Overall
	Boss	Colleague	
Conspiracy	60.60 (-28.33) [68.50] n = 50	63.50 (-24.64) [65.00] n = 44	62.05 (-26.49) [65.00] n = 94
Single	61.20 (-27.75) [70.00] n = 49	57.02 (-24.97) [60.00] n = 41	59.11 (-26.36) [70.00] n = 90
Overall	60.90 (-27.90) [70.00] n = 99	60.25 (-24.81) [65.00] n = 85	

Panel B : ANOVA Model of Whistleblowing

Manipulation	SS	df	MS	F-statistic	p-value
Power Distance	14	1	14.1	0.020	0.888
Wrongdoer	325	1	324.7	0.454	0.501
PowerDistance* Wrongdoer	573	1	572.7	0.801	0.372
Error	128632	180	714.6		

Panel A of Table 2 presents the mean values for the whistleblowing rate in each treatment. Panel B presents our ANOVA test results for the effect of our manipulations on whistleblowing.

questions incorrectly, the final sample comprised 184 subjects. Panel A of Tables 2 and 3 reports the descriptive statistics. Panel B of Table 2 and Figure 1 present the results of the analysis of variance (ANOVA).

Panel A of Table 2 presents the reporting likelihood of whistleblowing by condition. It reveals that the reporting likelihood under the conspiracy condition and that under the single condition are 62.05 and 59.11, respectively. Thus, a participant under the former condition tends to blow the whistle more than that under the latter condition. This result is consistent

TABLE 3. Descriptive Statistics of Dependent Variables

Panel A : Fairness—Mean, (Standard Error), and [Median]

Wrongdoer	Power Distance		Overall
	Boss	Colleague	
Conspiracy	5.10	5.39	5.25
	(1.68)	(1.57)	(1.63)
	[5.50]	[6.00]	[6.00]
	n = 50	n = 44	n = 94
Single	5.18	4.80	4.99
	(1.64)	(1.71)	(1.68)
	[5.00]	[5.00]	[5.00]
	n = 49	n = 41	n = 90
Overall	5.14	5.11	
	(1.65)	(1.65)	
	[5.00]	[5.00]	
	n = 99	n = 85	

Panel B : Risk of Reporting—Mean, (Standard Error), and [Median]

Wrongdoer	Power Distance		Overall
	Boss	Colleague	
Conspiracy	6.10	5.93	6.02
	(1.27)	(1.42)	(1.35)
	[6.50]	[6.00]	[6.00]
	n = 50	n = 44	n = 94
Single	5.73	5.68	5.71
	(1.68)	(1.63)	(1.66)
	[6.00]	[6.00]	[6.00]
	n = 49	n = 41	n = 90
Overall	5.92	5.82	
	(1.49)	(1.52)	
	[6.00]	[6.00]	
	n = 99	n = 85	

Panel A of Table 3 presents the mean values for fairness in each condition. Fairness is measured by the following question : “In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers the fairness of doing so (whether he believes that whistleblowing is a fair act)” (1 = very unlikely, 7 = very likely, see Appendix : Q 2). Panel B presents the mean values for risk of reporting in each condition. Risk of reporting is measured by the following question : “In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers the risk of reporting (whether he believes that reporting Alpha’s wrongdoing to the hotline is risky and will likely harm Pat’s career at Alpha)” (see Appendix : Q 4).

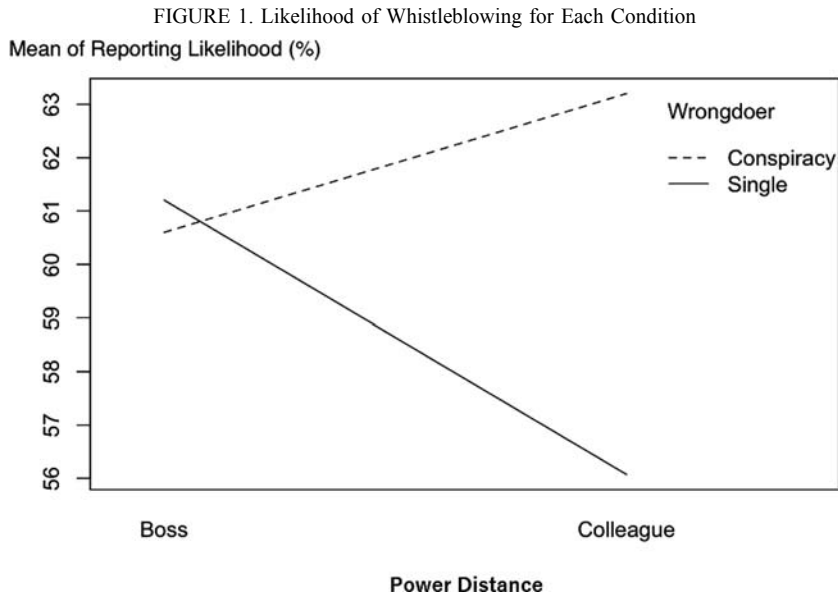


Figure 1 graphically depicts the observed mean values for the likelihood of whistleblowing by condition. The likelihood of whistleblowing is measured by the following question: “In your opinion, what is the likelihood that Pat will report to his firm’s hotline?” (0 = very unlikely, 100 = very likely, see Appendix : Q 1).

with our prediction.

Panel A of Table 3 presents the proxy variable of the fairness by condition. It reveals that fairness under the conspiracy condition and that under the single condition are 5.25 and 4.99, respectively. Thus, a participant under the former tends to weigh fairness more than that under the latter. Panel B of Table 3 presents the proxy variable of the risk of reporting by condition. It reveals that the risk under the Conspiracy—Boss condition is the highest (6.10). Thus, a participant under such condition tends to experience a tradeoff between fairness and risk. This result is consistent with our prediction.

As indicated in Panel B of Table 2 (the ANOVA results), there was no significant difference between each condition ($p=0.888$ and $p=0.501$). However, according to Figure 1, the Conspiracy—Colleague condition has a higher reporting likelihood than the Conspiracy—Boss condition. Next, we reveal the psychology factors of potential whistleblowers.

Test of H 1

Hypothesis 1 posits that fairness correlates with the reporting likelihood of whistleblowing. To test H 1, we analyze only the colleague condition ($n=85$) to eliminate the effect of power distance. An analysis of determinants of whistleblowing under these conditions is presented in Table 4.

TABLE 4. Results of Regression Analysis in Colleague Condition

Term	Expected sign	Wrongdoer	
		Single	Conspiracy
<i>Intercept</i>	β_0	23.070 (23.514)	36.880 (23.678)
<i>Fairness</i>	β_1 (+)	7.238 *** (2.143)	9.208 *** (H 1) (2.378)
<i>Loyalty</i>	β_2	-3.586 (2.150)	-1.980 (2.707)
<i>Risk</i>	β_3	-2.589 (2.250)	-1.558 (2.868)
<i>Age</i>	β_4	0.635 (0.394)	-0.184 (0.357)
<i>Gender</i>	β_5	7.513 (6.571)	5.806 (5.962)
<i>Time</i>	β_6	0.023 (0.061)	-0.001 (0.037)
n		41	44
adj R2		0.219	0.192

***/**/* indicates significance at the 0.01, 0.05, and 0.10 levels, respectively. () shows the standard error. Table 4 presents our tests of H 1 for the likelihood of whistleblowing in the Colleague treatment. The likelihood of whistleblowing, which is a dependent variable, is measured by the following question: "In your opinion, what is the likelihood that Pat will report to his firm's hotline?" (0 = very unlikely, 100 = very likely, see Appendix : Q 1). The independent variable *Fairness* is measured by the following question: "In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers the fairness of doing so (whether he believes that whistleblowing is a fair act)" (1 = very unlikely, 7 = very likely, see Appendix : Q 2). The independent variable *Loyalty* is measured by the following question: "In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers loyalty (whether he believes that whistleblowing is a disloyal act)" (see Appendix : Q 3). The independent variable *Risk* is measured by the following question: "In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers the risk of reporting (whether he believes that reporting Alpha's wrongdoing to the hotline is risky and will likely harm Pat's career at Alpha)" (see Appendix : Q 4). *Age*, *Gender*, and *Time* are control variables. *Age* is the age of the participants, *Gender* is coded as 0 = male, 1 = female, and *Time* is the participants' response time in our experiments.

As indicated in Table 4, there is a correlation between whistleblowing and fairness under the Conspiracy—Colleague condition ($t = 3.872$, $p = 0.0004$). In addition, there is a correlation between whistleblowing and fairness under the Single—Colleague condition ($t = 3.378$, $p = 0.002$). There is also a correlation between whistleblowing and fairness under the Conspiracy—Colleague and Single—Colleague conditions, but the former is more reliable ($p = 0.0004$); H 1 is therefore supported. Finally, regarding fairness, the Conspiracy and Single conditions were compared using the Mann—Whitney U test, but there was no significant difference ($W = 705.5$, $p\text{-value} = 0.071$).

Test of H 2

Hypothesis 2 posits that the risk of reporting correlates with the likelihood of whistleblowing under the Conspiracy—Boss condition. To clarify how power distance affects

TABLE 5. Results of Regression Analysis in Conspiracy Condition

Term	Expected sign	Power Distance	
		Colleague Condition	Boss Condition
<i>Intercept</i>	β_0	36.880 (23.678)	121.853 *** (39.261)
<i>Fairness</i>	β_1 (+)	9.208 *** (2.378)	5.529 ** (2.367)
<i>Loyalty</i>	β_2	-1.980 (2.707)	-3.590 (2.168)
<i>Risk</i>	β_3 (-)	-1.558 (2.868)	-5.335 *(H 2) (3.116)
<i>Age</i>	β_4	-0.184 (0.357)	-1.400 (1.070)
<i>Gender</i>	β_5	5.806 (5.962)	1.178 (6.813)
<i>Time</i>	β_6	-0.001 (0.037)	-0.042 (0.038)
n		44	50
adj R2		0.192	0.138

***/**/* indicates significance at the 0.01, 0.05, and 0.10 levels, respectively. () shows the standard error. Table 5 presents our tests of H 2 for the likelihood of whistleblowing in the Conspiracy treatment. The likelihood of whistleblowing, which is a dependent variable, is measured by the following question: "In your opinion, what is the likelihood that Pat will report to his firm's hotline?" (0 = very unlikely, 100 = very likely, see Appendix : Q 1). The independent variable *Fairness* is measured by the following question: "In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers the fairness of doing so (whether he believes that whistleblowing is a fair act)" (1 = very unlikely, 7 = very likely, see Appendix : Q 2). The independent variable *Loyalty* is measured by the following question: "In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers loyalty (whether he believes that whistleblowing is a disloyal act)" (see Appendix : Q 3). The independent variable *Risk* is measured by the following question: "In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers the risk of reporting (whether he believes that reporting Alpha's wrongdoing to the hotline is risky and will likely harm Pat's career at Alpha)" (see Appendix : Q 4). *Age*, *Gender*, and *Time* are control variables. *Age* is the age of the participants, *Gender* is coded as 0 = male, 1 = female, and *Time* is the participants' response time in our experiments. For H 2, the risk of reporting correlates with the likelihood of whistleblowing under the Conspiracy-Boss condition.

whistleblowing intention in collusion fraud situations, we compare the Conspiracy—Colleague condition with the Conspiracy—Boss condition.

As indicated in Panel A of Table 5 (the H 2 test results), there is a correlation between reporting and risk in the Conspiracy—Boss condition ($t = 3.116$, $p = 0.094$). However, there were no correlations between reporting and risk under the Conspiracy—Colleague condition. This indicates that the negative impact of risk of reporting on the whistleblowing intention is stronger in the former than in the latter condition; H 2 is therefore supported. Furthermore, the coefficient of fairness in the Conspiracy—Colleague condition was 9.208 ($p < 0.01$), while it was 5.529 ($p < 0.05$) in the Conspiracy—Boss condition. In other words, the positive impact of fairness on the whistleblowing intention is smaller in the latter than in the former condition. The above indicates that under the Conspiracy—Boss condition (i.e., when a power

relationship occurs), there is a tradeoff between fairness and risk of reporting. Additionally, the risk of reporting, the Conspiracy—Boss condition, and the Conspiracy—Colleague condition were compared using the Mann—Whitney U test; there was no significant difference ($W = 1044.5$, $p\text{-value} = 0.6528$).

DISCUSSION AND CONCLUSION

This study experimentally examines how the power distance in a conspiracy affects the potential whistleblowing motivation of those who are illegally involved. We investigate the incentive mechanism of the potential whistleblowing in a more realistic environment by matching the conspiracy and power distance, which previous studies treat separately.

We employed a 2 (wrongdoer) \times 2 (power distance) between-participants experiment using the AMT platform to test our hypotheses. The results reveal that a fairness-risk of reporting tradeoff occurs, especially in the conspiracy relationship between a superior and their subordinate.

This study makes the following contributions. First, by examining the incentive mechanism of whistleblowing in a more realistic setting through matching the conspiracy and power distance, it contributes to the recent literature on whistleblowing and corporate governance (e. g., Carcello et al. 2011). Second, our study also extends institutional design for fraud detection. Our results shed light on a fairness-risk of reporting tradeoff, especially in the conspiracy relationship between a superior and their subordinate. This study can therefore help policy makers and managers design a mechanism that lowers the risk of reporting and inspires fairness against conspiracies.

Despite its contributions, this study is naturally subject to several limitations. Some of these are inherent in the use of an experimental approach and relate to the generalizability of our findings to real-world settings. As our experimental settings are highly controlled, caution is recommended when extrapolating laboratory results to real-world situations.

In reality, there are various circumstances and motivations leading to conspiracies (Albrecht et al. 2015; Free and Murphy 2015). Based on an inductive analysis of interviews with 37 convicted fraudsters who were involved in a group of fraud co-offenders, Free and Murphy (2015) investigate the reasons individuals co-offend in fraud. They argue that reasons for instigating and continuing co-offender frauds vary according to the nature of ties between co-offenders in the commission of fraud. We will examine the relationship between motivation leading to conspiracy and the degree of whistleblowing in future research.

APPENDIX.

The Scenario and questions used for the experiment³

Scenario

Pat's primary responsibility as a staff accountant is to perform accounting for the company's accounts payable transactions, as well as to sort the invoices for his *boss (or colleague)*, the Chief Financial Officer at Alpha. Recently, while *engaged in his typical duties of* sorting and filing invoices, Pat discovers an invoice that clearly indicates that Alpha is using fabric produced in Central America, instead of North America, for manufacturing uniforms for a client. Although purchasing cheaper fabric from Central America decreases Alpha's manufacturing costs (and, therefore, increases the company's profits), it is a clear and fraudulent violation of the contract. In fact, the contents of the letter suggest that, as a result of the fraud, Alpha has been earning additional profits.

Pat realizes that his *boss (or colleague)* is the wrongdoer regarding this contract violation. *Pat realizes that he has also become involved in this fraud.* His firm has a whistleblower hotline, through which individuals are encouraged to report fraudulent activity. All responses are kept anonymous.

Questions

Q 1. In your opinion, what is the likelihood that Pat will report to his firm's hotline? Please answer on a scale of 0 to 100, where 0 is "very unlikely" and 100 is "very likely."

Q 2. In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers the fairness of doing so (whether he believes that whistleblowing is a fair act). Please answer on a scale of 1 to 7, where 1 is "very unlikely" and 7 is "very likely."

Q 3. In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers loyalty (whether he believes that whistleblowing is a disloyal act).

Q 4. In your opinion, when Pat decides whether to report or not, what is the likelihood that he considers the risk of reporting (whether he believes that reporting Alpha's wrongdoing to the hotline is risky and will likely harm Pat's career at Alpha).

³ The underlined text in italics varies depending on the conditions.

Q 5. Check question : Who is involved in this wrongdoing?

Q 6. Check question : Please select “3” among the following radio buttons.

Q 7. What is your gender? (1 = female, 0 = male, 2 = other (Prefer not to say))

Q 8. What is your age?

Q 9. What is the length of your work experience? (year)

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