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Finding partners in crime? How transparency about managers' behavior affects employee collusion☆

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ABSTRACT

In this paper, we investigate how increasing transparency about managers' treatment of their employees affects the tendency of employees to initiate collusion. Building on behavioral economics theory, we argue that employees who are treated less kindly by their managers are more willing to initiate or join a collusive agreement. We hypothesize that internal transparency affects collusion in two ways. First, by revealing how kindly employees are treated by their managers, transparency increases or decreases the probability that individuals are singled out as potential "partners in crime." Second, increasing transparency incentivizes managers to treat employees more kindly, which in turn reduces employees' inclination to initiate collusion. The results of two experiments generally support the theory. We discuss the implications of our study for research and practice.
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1. Introduction

Surveys of practice indicate that employee collusion is a cause of concern in organizations. In a recent report, the Association of Certified Fraud Examiners (ACFE) estimates that the median US firm loses the equivalent of 5 percent of their annual revenue to fraud, and that about 50 percent of fraud cases involve collusion schemes. Moreover, the report shows the median loss of collusive frauds is 259 percent higher than the median loss of frauds committed by a single person (ACFE, 2018, p. 42). Similar findings are reported in two KPMG reports surveying fraud cases (2013, 2016). The 2013 KPMG report further points out that collusive fraud is on the rise, as the proportion of fraud cases involving collusion rose from 32 percent in 2007, to 61 percent in 2011, and 70 percent in 2013 (KPMG, 2013, p. 15). Besides fraud, organizations are also likely to suffer from more subtle forms of collusive rent extraction. For example, employees can join forces to game budgeting processes, manipulate performance measures, or obstruct information flows or knowledge transfers (Chen, 2003; Collins, Munter, & Finn, 1987; Connelly, Zweig, Webster, & Trougakos, 2012; Evans, Moser, Newman, & Stikeleather, 2016; Tirole, 1986).

In spite of the evidence that collusion is common and costly, research in accounting and related fields has largely treated employee rent extraction as the act of an individual (Brown, Evans, & Moser, 2009; Button, Shepherd, & Blackbourn, 2018; Douthit & Majerczyk, 2019; Douthit & Stevens, 2015; Evans, Hannan, Krishnan, & Moser, 2001; Free & Murphy, 2015). Collusion differs from individual rent extraction because it requires accomplices first to establish collusive agreements, and then to implement those agreements (Evans et al., 2016). While there is some research on how fraudsters implement previously established collusive agreements (Evans et al., 2016), and practitioners suggest that controls can reduce collusion (e.g., KPMG, 2016), we have little empirical evidence about how collusive initiatives emerge and about how control systems affect the initiation of collusion.

We argue that to understand why employees initiate collusion, it is important to consider the role of managers. Managers often have considerable discretion in how they treat employees (Bolton & Dewatripont, 2012; Cardinaels & Yin, 2015). For example, within limits, managers can decide how much time and resources are spent on organizing social events, on coaching and training employees, or on improving employee working conditions. Prior research and insights from practitioners suggest that some managers are more generous toward their employees than others, and that dysfunctional and fraudulent behavior often originates in

☆ The instruments and data from the two experiments are available from the authors upon request.

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employees' sense of being treated unkindly or unfairly by their employer or direct supervisor (Chen & Sandino, 2012; Douthit & Stevens, 2015; KPMG, 2016; Zhang, 2008). We posit that employees' willingness to initiate collusion is similarly affected by reciprocal motives. Importantly however, aspiring colluders also need to consider whether they have reliable 'partners in crime', as initiating collusion with a colleague who refuses to join in, quickly abandons, or even betrays the pact is very costly (Free & Murphy, 2015; McCarthy, Hagan, & Cohen, 1998). We theorize that employees will anticipate that colleagues also value reciprocity, such that peers who are treated unkindly by their boss will be more willing to engage in collusion. Moreover, we reason that employees will think that their peers have similar concerns, such that their own credibility as a collusion partner depends on how they are treated by their boss.

Based on this reasoning, we predict that information about managers' behavior is critical in understanding the emergence of collusion. In many cases, employees have limited information on how potential collusion partners are treated by their managers, for example, because they do not frequently interact or because they work in different parts of the organization. As a result, in such cases, employees' assessments of the likelihood that colleagues are willing to collude will be formed based on public information about how potential partners are treated by their boss.

Existing research suggests that transparency about manager behavior varies substantially across firms, and there is much debate, both in academia and in practice, about whether it is beneficial for firms to become more transparent about things such as salaries, allocation decisions, and work conditions (Belogolovsky & Bamberger, 2014; Bernstein, 2014; Bol, Kramer, & Maas, 2016; Burkus, 2016; Costas & Grey, 2014; Guo, Libby, Liu, & Tian, 2020; Hill, 2016). While some authors have identified costs of increased transparency, for example a reduction in innovativeness (Bernstein, 2014) and inaccurate promotion decisions (Chan, 2018), many others have pointed to potential benefits. One claim that is often made is that transparency can reduce corruption and fraud (e.g., Albrecht, Wernz, & Williams, 1995; Heathfield, 2019). We suggest, however, that when fraudulent activities require multiple employees to join forces, transparency can be a double-edged sword, as it can inhibit but also facilitate the initiation of employee collusion.

Specifically, we hypothesize that in more transparent firms employees will use information about their peers' managers to update their beliefs about the likelihood that these peers will make reliable collusion partners. Transparency can then increase or decrease employees' tendency to initiate collusion depending on how kindly peers are treated. We further propose that employees are also able to anticipate that transparency will similarly facilitate colleagues' assessment of their own credibility as collusion partner. We therefore hypothesize that employees' own treatment will have a stronger effect on their collusion initiation in more transparent organizations. Finally, we propose that managers in transparent organizations will anticipate that treating employees more kindly will not only discourage these employees from attempting collusion, but also discourage other employees from attempting to collude with these kindly treated employees. This way, transparency can stimulate managers to treat employees more kindly.

To test our predictions, we conduct two experiments. Experiment 1 is a stylized lab experiment in the experimental economics tradition in which manager kindness is operationalized as a monetary transfer from the manager to the employee. In the experiment, groups of four participants form an organization consisting of two departments, each with a manager and an employee. The experiment consists of two stages. In the first stage, managers decide how kindly they treat their employee. More kindness increases the payoff of the employee but decreases the payoff of the manager. In the second stage, employees decide whether or not to initiate collusion with the employee of the other department. Collusive agreements are made if — and only if — both employees initiate collusion. Employees incur a cost once they initiate collusion, but they receive an increase in payoff when a collusive agreement is made. Managers' payoff is decreased in case the employees establish a collusive agreement. We manipulate transparency by varying whether or not employees are informed about their peer's manager's kindness prior to making their collusion decision.

The results of Experiment 1 are consistent with our predictions. First, compared with employees who do not know how their peers are treated by their boss, employees who are informed about their peers' treatment are less likely to initiate collusion with peers who are treated kindly and more likely to initiate collusion with peers who are treated unkindly. This result is important, because if employees do not anticipate that peers have a preference for reciprocity, as both conventional economic reasoning and the psychology literature on laypersons' theories of motivation (e.g., Heath, 1999; Miller & Ratner, 1998) suggest, they should not react to information about how peers are treated. Second, our results show that employees who themselves are treated unkindly (kindly) are more (less) likely to initiate collusion when their peers are informed about this treatment than when their peers are not informed. This result is also important, because if employees do not anticipate that peers will form beliefs about their own credibility based on how they themselves are treated, as existing research on higher-order beliefs in strategic settings (e.g. Carpenter, 2003; Ho, Camerer, & Weigelt, 1998; Nagel, 1995) suggests, they should not react to what peers know about them. Finally, we find that in later rounds of the experiment managers in transparent organizations are more likely to treat employees kindly than managers in non-transparent organizations. Additional analyses corroborate that our results are due to the proposed mechanisms, i.e. that organizational participants anticipate each other's reciprocity.

Experiment 2 focuses on establishing the generalizability of the key finding of Experiment 1 that transparency about employees' treatment affects collusion initiation. This second experiment consists of a context-rich vignette study as is often used in the judgment and decision-making literature (e.g., Kadous & Zhou, 2017). Participants read a case scenario in which they assume the role of an employee who has the opportunity to approach a colleague with a collusion proposal. We manipulate transparency by varying the case facts such that the participants either know (high transparency) or do not know (low transparency) how their colleague's boss treats his employees. Next, within the high transparency condition, we manipulate the kindness of the colleague's boss by describing his personality and behavior as being kind or unkind. Data collected from 362 Amazon Mechanical Turk workers again support our theory that transparency about peer managers' kindness affects employees' tendency to initiate collusion.

Our paper makes several contributions to accounting research and practice. First, we extend the literature on the determinants of collusion. Prior research shows that transparency about employees' collusive actions can facilitate fraudsters' implementation of established collusive agreements (Evans et al., 2016). We extend the line of research initiated by Evans et al. (2016) by documenting the effect of transparency about *manager behavior* on employee collusion *initiation*. We reason that knowing how peers are treated by their managers is important for employees to assess how likely it is that peers will be receptive to a collusion proposal. Consistent with this reasoning, our results show that transparency about manager behavior affects whether employees initiate collusion and

can increase or decrease collusion depending on managers' actions.

Next, our study extends Zhang (2008), who found that two employees in the same department are more likely to collude against the department manager if this manager treats them unfairly. Whereas in Zhang's (2008) setting the two employees always receive the same treatment and know that their peer is treated in the same way as they are, in practice, employees often have limited information about how potential collusion partners are treated. In our study, we disentangle the effects of managers' behavior on their own employees' willingness to collude from the effects of informing employees about how potential partners in crime have been treated by their managers. We show that employees respond to information about peers' treatment such that they increase collusion more when knowing that peers are treated less kindly. Moreover, we show that employees respond to information about their own treatment being shared with their colleagues.

Finally, on a more general note, the findings of our study contribute to the literature on internal transparency and the costs and benefits of open information policies inside firms. While prior studies primarily focus on internal transparency with regard to employee behavior (Evans et al., 2016; Guo et al., 2020; Maas & van Rinsum, 2013), this study focuses on internal transparency about managers' behavior. We predict and show that transparency about manager behavior increases manager kindness, as managers realize that in a transparent organization employees who are treated unkindly are not only more likely to retaliate by taking the initiative to engage in fraudulent or collusive acts, but also more likely to be singled out as potential accomplices in such acts by other employees.

2. Background and hypothesis development

2.1. Employee collusion

We define employee collusion as cooperation between employees that is detrimental to principals (i.e., managers and/or owners) (Hannan, Towry, & Zhang, 2013; Holmström & Milgrom, 1990). Collusion can take on many forms, from outright fraud to more subtle collaborations between employees to extract rents from the organization (Evans et al., 2016; Islam et al., 2011; Tirole, 1986; Zhang, 2008). Examples of non-fraudulent collusion include unit managers who join forces to game the budgeting process (Chen, 2003; Collins et al., 1987), and sales representatives who agree to not share valuable private information with their superiors but instead exploit it to their own benefit (Connelly et al., 2012; Kane, Argote, & Levine, 2005). Regarding fraud, surveys of practice (e.g., ACFE, 2018; KPMG, 2013, 2016) indicate that collusive fraudulent activities are prevalent and vary in nature. Importantly, collusive fraud is often more costly than fraud conducted by a single person. For example, according to the ACFE report, the median loss of a fraud committed by two perpetrators is more than twice as high as the median loss of a fraud committed by a single person, whereas the median loss from a fraud committed by three or more people is 458 % of that of a fraud committed by an individual (ACFE, 2018, p. 42). The ACFE report indicates that one likely explanation for this finding is that many anti-fraud controls work on the principles of separation of duties and independent checks. By working together, fraudsters can circumvent these internal controls. The 2016 KPMG report also suggests that while most fraud cases are facilitated by weak controls, even with strong controls in place, fraud is possible when employees work together. Specifically, KPMG (2016, p. 11) reports that in 11 % of the fraud cases in their survey strong controls had been circumvented by collusion.

In addition to the broad-scale evidence provided by these surveys of practice, both the practitioner-oriented literature and the academic literature contain more in-depth descriptions of collusive fraud cases. For example, Edelman and Owens (2014) describe a collusive scheme at a publicly traded Fortune 500 company that involved a collaboration between four employees in different departments exploiting a control weakness in one of the firm's newly acquired divisions. Also, Free and Murphy (2015) interviewed 37 convicted fraudsters who co-offended with at least one other individual and, similarly, Gondowijoyo, Hayne, and Murphy (2021) interviewed 19 individuals who engaged in a collusive fraud and in addition 19 individuals who were under pressure to participate in a group fraud, but in the end decided against joining in. Free and Murphy (2015) and Gondowijoyo et al. (2021) provide many qualitative insights into the characteristics of collusive frauds and the factors that facilitate and prevent such frauds. One conclusion of these interview studies is that forming a group not only provides fraudsters with additional resources, but also allows them to rationalize their actions and creates a sense a shared responsibility.

Evans et al. (2016) propose that employee collusion follows a two-stage process. In the first ("initiation") stage, potential colluders come together and form a collusive agreement. In the second ("implementation") stage, the colluders decide whether to honor this agreement, or instead to defect and possibly even to report the agreement to an authority. Experiments in accounting (Evans et al., 2016; Hannan et al., 2013; Towry, 2003; Zhang, 2008) and industrial organization (e.g., Hinloopen & Onderstal, 2014; Hu, Offerman, & Onderstal, 2011) have shed light on individuals' behavior in settings that are reminiscent of the implementation stage. These studies generally conclude that the quality of the relationship between colluders is critical in this second stage. For example, Evans et al. (2016) show that transparency about employee behavior allows a reciprocal relationship between fraudsters to develop, thereby encouraging them to honor their collusive agreements.

Not much is known, however, about the first stage, that is, about employees' decisions to enter into a collusive agreement with a peer (Free & Murphy, 2015; McCarthy et al., 1998). Whereas in the implementation stage the employees' primary concern is whether their partner will betray their previously established agreement (Evans et al., 2016), in the initiation stage their main concern is whether a potential partner is willing to make himself/herself better off at a cost to his/her manager, and join a collusive effort. We argue that this willingness depends on how kindly they are treated by their manager and on how transparent organizations are about how managers treat their employees.

2.2. Manager kindness

We define manager kindness as the extent to which a manager's actions increase the well-being of his or her subordinates (Curry et al., 2018).[1] How leaders treat their followers, and, more generally, how individuals treat each other - and should treat each other - has occupied authors from classic philosophers to modern day social scientists. In both Eastern and Western philosophy, kindness is often considered a virtue, and closely associated with concepts such as empathy and compassion. Contemporary research in psychology and sociology likewise associates kindness with empathy and suggests that humans tend to treat others kindly because they understand how it feels to be treaded unkindly, and they feel bad if others suffer (e.g., de Waal, 2008; Silton, 2018).

Even if humans in general are empathetic and tend towards

[1] Note that our interest in this study is in *relative* kindness. Thus, we examine whether some managers act more kindly than others, not whether kindness levels are labeled as "kind" versus "unkind" on some pre-established scale. For readability purposes we simply refer to relative (un)kindness behavior as "(un)kindness."

kindness, there is much variation across individuals and across contexts.[2] Thus, we would expect that within an organization some employees are treaded more kindly by their manager than others. Manager kindness would for example manifest itself in paying above market-rate wages (Chen & Sandino, 2012) or being generous with bonuses or non-monetary benefits. Other examples of kindness include efforts to improve employee working conditions, the provision of on-the-job training and employee education programs (Loewenstein & Spletzer, 1999), personal support (Wayne, Shore, & Liden, 1997), giving compliments, praise, and words of recognition (Sezer, Nault, & Klein, 2021), organizing social events at work (Fried, Grant, Levi, Hadani, & Slowik, 2007), accurate and fair performance evaluations (Maas, van Rinsum, & Towry, 2012), eschewing strict control mechanisms (Christ, 2013), and getting to know — and staying up-to-date with — employees' private lives and facilitating the fulfillment of their personal needs (Bailyn, Fletcher, & Kolb, 1997).[3]

2.3. Internal transparency

There is much variation in the extent to which organizations are transparent about the actions and decisions of individual managers (Belogolovsky & Bamberger, 2014; Bol et al., 2016; Colella, Paetzold, Zardkoohi, & Wesson, 2007; Costas & Grey, 2014; Guo et al., 2020). Organizations can manage the level of transparency through policies to actively distribute information among managers and employees, or alternatively, policies to deliberately suppress information flows. Examples of the former type include intranet webpages, newsletters, meetings, and publicly accessible databases. To illustrate, some organizations actively disseminate information about managers by making the managers' work calendar visible to everyone in the firm (Bellows, 2018). Also, mobile payment company Square requires managers to publicly share notes from each meeting they organize (Truong, 2013), and research software firm Qualtrics makes individual performance reviews and results and satisfaction levels in each unit available to anyone in the company (Smith & Tabibnia, 2012). Examples of policies to prevent transparency include physical and organizational barriers that restrict access to reports and databases, and the aggregation of data, such that it cannot be traced back to individuals or departments (Feltham & Hofmann, 2012).[4] Notably, internal transparency is not necessarily the result of a deliberate transparency policy. It is also affected by other organizational design choices and can be an unintended consequence of the implementation of an unrelated policy or technology. For example, organizations become more transparent if units share a physical location, if they move to an open office space, implement knowledge sharing systems, or frequently organize social events where people from different units come together (Albu & Flyverbom, 2019; Hoffman & Indjejikian, 2020; Maas & van Rinsum, 2013; Tsetsura & Luoma-aho, 2020).

2.4. Hypotheses

We examine the effect of internal transparency about managers' behavior on employees' tendency to initiate collusion with colleagues from the same organization. We build our hypotheses on the fundamental presumption that manager-employee relationships are characterized by reciprocity. A large literature in behavioral economics, based on the idea of gift exchange (Akerlof, 1982; Kube, Maréchal, & Puppea, 2012), provides evidence that individuals exhibit a general tendency to behave in a reciprocal way, such that they derive utility from being kind to others who have been kind to them and from being unkind to others who have treated them unkindly (Cox, Friedman, & Gjerstad, 2007; Falk & Fischbacher, 2006; Fehr, Gächter, & Kirchsteiger, 1997). Studies in accounting have shown that reciprocity can also exist in supervisor-subordinate relationships (e.g., Christ & Vance, 2018; Kuang & Moser, 2009; Maas et al., 2012; Majerczyk, 2018) and, more specifically, that employees have a tendency to reciprocate the kind or unkind behavior of their manager (Chen & Sandino, 2012; Hannan, 2005). Following this literature, we propose that a desire to retaliate against managers' unkindness can drive employees' willingness to collude.[5]

Based on the fundamental proposition that, *ceteris paribus,* employees who are treated more kindly by their managers are less willing to attempt collusion, we hypothesize that internal transparency will affect employees' collusion decisions in two ways. First, increasing internal transparency provides information to employees about the likelihood of their peers being "reliable" partners in crime (either a relatively high or a relatively low likelihood, depending on the content of the information). We label this effect the *beliefs effect*. Second, increasing internal transparency can influence managers' decisions to act kindly toward their employees, which in turn can influence employees' collusion initiation. We label this effect the *incentive effect*. Below, we first develop hypotheses about how employees' decisions to initiate collusion will be influenced by the beliefs effect of transparency. We then turn to how managers' decisions are affected by the incentive effect of transparency.[6]

2.4.1. The beliefs effect

Like other forms of co-offending, collusion typically starts off with a phase in which the later colluders carefully assess each

[2] Performing acts of kindness can be costly for oneself, as it may require effort, time, or resources to be kind to others. Therefore, kindness may be limited by self-interest. However, kindness also often has long-term benefits for oneself, as it can elicit reciprocal reactions and help build a good reputation. Psychology research also indicates that engaging in kind behavior can improve one's own well-being through happiness (Curry et al., 2018).

[3] To further clarify our notion of kindness, it is useful to distinguish it from the related concept of fairness. Fairness refers to actions and outcomes that conform to certain norms (Kahneman. Knetsch, & Thaler, 1986; Konow, 1996; Henrich, 2000). For example, if the norm prescribes an equal distribution of some resource, then an equal allocation is considered fair (Fehr & Schmidt, 1999), whereas an unequal allocation based on relative contribution can be perceived as fair if the norm prescribes an allocation based on relative contribution (Konow, 1996). Importantly, fairness norms vary between settings and between individuals (e.g., Cappelen, Hole, Sorenson, & Tungodden, 2007). While kind acts will often be perceived as fair, and fair acts may also be kind acts, this is not necessarily the case. Importantly, our theory does not require that employees perceive kindness as fair and unkindness as unfair, but if they do so that likely strengthens the predicted effects.

[4] In our theory development, we consider a general notion of transparency. However, we acknowledge that some organizations might be transparent about certain types of decisions but not about others. To illustrate, companies are known to actively distribute or suppress information about decisions regarding salaries and salary raises (Colella et al., 2007), bonuses and performance ratings (Bol et al., 2016), department costs (Evans et al., 2016), and resource allocation decisions (Fisher, Maines, Peffer, & Sprinkle, 2002).

[5] Employee collusion can be harmful to managers and/or owners. In our study, we assume that the interests of managers and owners are aligned. However, even if their interests diverge and collusion is only harmful to owners, unkind behavior by managers can still be a driver of collusion. Existing research suggests that employees may fail to differentiate between their manager and the firm as a whole when assigning blame or credit, or may blame the firm for being paired with an unkind manager (Berry, Ones, & Sackett, 2007; Maximiano, Sloof, & Sonnemans, 2013; Morrison & Robinson, 1997).

[6] Note that we do not make a prediction about the overall effect of transparency on collusion. In an experiment, the relative strength of the beliefs effect and the incentive effect will depend on the specific parameters that are chosen (e.g., the fixed cost for collusion). For this reason, we focus on establishing that both effects exist and influence participants' decisions as predicted by our theory, rather than predicting their relative strength.

other's credibility as a partner in crime (Free & Murphy, 2015; McCarthy et al., 1998). While in many cases one employee clearly makes the first move (Gondowijoyo et al., 2021), a collusion agreement can also be the outcome of a longer process in which employees feel each other out (Free & Murphy, 2015). In any case, all employees involved face significant risk, as they make themselves vulnerable to their accomplices' whims and possible hidden agendas (McCarthy et al., 1998). An approached colleague can decide not to join in, or an initially enthusiastic partner can later decide to back out. Peers may also report collusion attempts to managers, likely leading to repercussions. Thus, it is crucial for employees with collusive intentions to only join forces with colleagues who will prove to be reliable partners.

We argue that to identify such colleagues, employees in transparent firms will use information about managers. The reason is that in addition to having a preference for reciprocity themselves, employees may also expect other employees to value reciprocity. If employees who are looking for a partner in crime are able to anticipate that other employees will also be reciprocal in their relationship with their boss, they will be less likely to approach colleagues whom they know are treated kindly, and more likely to approach employees whom they know are treated unkindly. For example, employees may expect colleagues in departments in which the manager puts much effort in coaching and training employees or improving employee working conditions to be relatively unwilling to collude against their manager. On the contrary, employees in departments with managers who are inconsiderate and selfish would be judged to be relatively credible collusion partners. Internal transparency reveals how colleagues in other departments are treated and thus allows employees to update their beliefs about potential collusion partners. Thus, in relatively transparent organizations, an employee's treatment by his or her manager will influence the probability that this employee will be approached by peers as a potential partner in crime. In less transparent (more opaque) organizations, employees' treatment by their manager goes relatively unnoticed, such that colleagues cannot use information about this treatment when assessing the employee's willingness to join a collusion initiative. This reasoning leads to the following hypothesis:

H1. There is a negative interaction effect of transparency and the kindness of peers' treatment by their managers on employees' propensity to initiate collusion with these peers, such that increasing transparency reduces the likelihood that an employee initiates collusion with a peer more if this peer is treated more kindly.

Next, we argue that transparency about managers' behavior will also cause employees to consider their own credibility as a collusion partner. As indicated, collusion is a two-stage process (Evans et al., 2016) and initiation is only the first step. Collusion partners also need to implement collusion plans at a later stage. Therefore, aspiring colluders will consider whether peers might have concerns about their longer-term credibility as a collusion partner. For example, an employee who considers approaching a colleague with a collusion proposal could be worried that this colleague will refuse to join in because she is afraid that the proposer's initial enthusiasm might wane over time. In a transparent organization, employees who are treated unkindly by their manager are identifiable as relatively reliable potential collusion partners whereas more kindly treated employees will be considered less reliable. Employees who realize that a peer's manager's kindness is a signal of this peer's willingness to collude are likely also able to anticipate that their peer has come to the same realization. Therefore, a kindly treated employee may anticipate that peers who in principle would be willing to collude will reason that he is relatively unlikely to be a reliable accomplice. This may, in turn, prevent this kindly treated employee from approaching a peer in the first place out of fear of being rejected. In contrast, an employee who is treated unkindly likely expects others to consider him a relatively reliable partner in crime, which can be an extra stimulus to initiate collusion. In less transparent organizations, where the information about an employee's treatment by his manager is hidden from his peers, employees will not have such possibilities to update their beliefs about peers' beliefs. In summary, we expect kindly treated employees to be *less* likely to initiate collusion, and unkindly treated employees to be *more* likely to initiate collusion as organizational transparency increases, which leads to our second hypothesis:

H2. There is a negative interaction effect of transparency and the kindness of employees' own treatment by their manager on employees' propensity to initiate collusion, such that increasing transparency reduces the likelihood that an employee initiates collusion more if the employee is treated more kindly.

Notably, the beliefs effect of transparency, as captured by H1 and H2, crucially depends on two core presumptions. First, the beliefs effect will only occur if employees anticipate that their colleagues have a preference for reciprocity. Second, H2 requires that employees form second-order beliefs about their colleagues. Both presumptions have been subject of debate in the literature, contributing to the tension in our predictions. Contrary to the presumption that employees anticipate the reciprocity in peers' relationship with their manager, the standard economics literature (e.g., Lambert, 2006) and layperson's theories of motivation described by psychologists (Heath, 1999; Miller & Ratner, 1998) typically assume that people expect others to be driven by a desire to maximize their monetary self-interest. Empirical evidence on this issue is scarce and inconclusive (Coats & Neilson, 2005; Declerck & Bogaert, 2008; Takagishi, Kameshima, Schug, Koizumi, & Yamagishi, 2010) but several studies have shown that the extent to which people believe reciprocity is an important norm in human interactions varies widely in the population (Coats & Neilson, 2005; Eisenberger, Lynch, Aselage, & Rohdieck, 2004; Perugini, Gallucci, Presaghi, & Ercolani, 2003). If employees believe that peers are mainly driven by self-interest, transparency will hardly affect initiation of collusion. The reason is that employees would presume that their peers' treatment by their boss is unlikely to affect their willingness to collude, and thus revealing this treatment would be inconsequential.

Contrary to our core presumption that employees who consider initiating collusion will form beliefs about their colleagues' beliefs about themselves, existing literature suggests that forming such second-order beliefs can be very challenging. Research in behavioral game theory and sequential bargaining has shown that individuals may not always engage in multiple steps of iterative thinking, i.e. thinking about how others think about them (e.g., Carpenter, 2003; Ho et al., 1998; Nagel, 1995). Instead, some individuals fail to realize the strategic nature of certain settings, and many of those who do realize this use a naïve action strategy that fails to fully take into account the perspective of the individuals that they are paired with (Bayer & Renou, 2016; Camerer, Ho, & Chong, 2004). Employees who do not consider that their own treatment by their boss can affect how they are perceived by their peers, will not adjust their behavior when transparency reveals this treatment.

2.4.2. The incentive effect

Turning to managers, our reasoning implies that acting kindly will be more effective in preventing collusion initiatives in more transparent organizations. Under relatively high transparency, acts of kindness will be observable throughout the organization. This will deter potential colluders under a kind manager's supervision

from approaching peers, and it will simultaneously deter peers from approaching kindly treated employees as potential accomplices. In contrast, unkind acts will encourage managers' own subordinates to approach peers with proposals for collusive agreements and will also encourage ill-intended peers to approach these unkindly treated employees as potential accomplices.

We argue that managers will form beliefs about employees' beliefs about other employees and are therefore able to anticipate how their behavior will affect the initiation of collusion. If this is true, managers in transparent organizations will realize that treating their employees kindly will not only deter these employees from initiating collusion but will also reduce the probability that employees elsewhere in the organization approach their subordinates as potential partners in crime. Managers in relatively non-transparent organizations on the other hand will realize that attempting collusion without much information about peers is risky for employees, and that even unkindly treated employees may therefore be reluctant to attempt collusion. These managers thus could decide to exploit the high level of uncertainty about employees' treatment in non-transparent organizations and decrease their level of kindness without facing severe negative consequences. This prediction is captured by our final hypothesis:

H3. Transparency increases the kindness of managers toward employees.

Clearly, similar to the beliefs effect, the incentive effect relies on the presumption that individuals develop - and act upon - beliefs about others' preferences and beliefs, adding tension to the hypothesis.

We conduct two experiments to test our predictions. Experiment 1 is a stylized lab experiment that is used to test all three hypotheses. Experiment 2 focuses on testing H1 in a more contextualized setting.

3. Experiment 1

3.1. Design and task

In the experiment, four participants form an organization with two departments (each with a manager and an employee). Employees earn a base salary of 800 points and managers earn a base salary of 1000 points. The experimental task consists of two stages. In Stage 1, the two managers independently and simultaneously decide whether or not to share a discretionary budget of 400 points with the employee in their department. If the manager chooses Share, the manager and the employee each get 200 points. If the manager chooses Not Share, the manager gets all 400 points and the department employee gets nothing. This sharing decision is our experimental operationalization of manager kindness.[7] In Stage 2, the employees independently and simultaneously decide whether to approach each other to propose a collusive agreement.[8] To operationalize the costs of initiating collusion, an employee who chooses to do so incurs a fixed cost of 600 points.[9] A collusive agreement is made if, and only if, both employees choose to collude. If there is a collusive agreement, the managers' payoff decreases by 800 points, while the employees' payoff increases by 800 points.[10] The decisions and payoffs are summarized in Fig. 1. As is clear from Fig. 1, the basic experimental game is completely symmetric in the sense that all managers face the same decision, and so do all employees. This setup allows us to pool the data from the two dyads, which together form an organization, in order to test our hypotheses.[11]

We manipulate the level of internal transparency by varying whether or not employees are informed about the other department's manager's sharing decision in Stage 1 prior to making their collusion decision. In the low transparency condition, employees (and managers) are not informed about the sharing decision in the other department. In contrast, employees (and managers) in the high transparency condition are informed about the other department's manager's sharing decision before employees decide on approaching their peer. The parameters in our experiment were chosen such that collusion attempts are costly to employees and collusive agreements between employees are costly to managers, which captures the notion of collusion being costly in real world settings.[12]

3.2. Participants and procedures

We conducted the experiment in the experimental economics lab of a large European university.[13] In total, 104 members of the lab's subject pool, having responded to an email invitation to sign up, participated in the experiment. There were four sessions, two for each condition (high transparency and low transparency). Each session contained either 24 or 28 participants.[14] The participants' age varied from 17 to 44, with a mean of 22.16 and a median of 22. In total, 58 participants (55.8%) were male and 46 (44.2%) were female. The majority (78 participants/75%) indicated that their major was economics or business. Most participants (94/90.4%) indicated they had at least some work experience, and 62 (59.6%) indicated that they had a (part-time) job at the time of the experiment. All participants received a €5 show-up fee in addition to the payoff from the experiment. On average, participants earned a total of €14.50 for about 45 min of their time. The average earnings of participants in the role of manager (€15.89) were somewhat higher

[7] This operationalization closely resembles operationalizations of kindness in other economic experiments (e.g., Andreoni, 1995; Charness, 2004; Ockenfels, Sliwka, & Werner, 2015).

[8] A simultaneous decision captures the notion that the initial stage of collusion is risky for both employees (Free & Murphy, 2015; McCarthy et al., 1998).

[9] The costs of initiating collusion include the psychological and economic costs of exposing oneself as a potential colluder, for example the damage to one's image or reputation, and the psychological discomfort of undermining one's self-image as a fair and honest person (e.g., Mazar, Amir, & Ariely, 2008).

[10] Our study focuses on the initiation of collusion. We assume that collusive agreements that are reached are successfully implemented with certain probabilities and collusive agreements that are not reached are never implemented (cf. Evans et al., 2016), such that employees who establish collusive agreements are expected to earn a higher payoff than employees who do not.

[11] Notably, we do not explicitly model an owner in our setting. Instead, we assume that owners and managers' interests are aligned in the sense that both are better off if there is no collusion, and that the owner has awarded the managers discretion over the level of kindness with which they treat employees (Aghion & Tirole, 1997; Bolton & Dewatripont, 2012). Our design choice to mute the active owner role is consistent with prior experimental accounting research that investigates manager behavior (e.g., Guo et al., 2017; Guo et al., 2020; Maas et al., 2012).

[12] The fixed cost of collusion initiation was set at a level that is high enough to prevent employees from initiating collusion unless they are quite confident that their potential accomplice will tie in (specifically: a subjective probability of 75 percent or higher). The cost of manager kindness was set at a level such that while acting kindly is costly, the cost is relatively limited and acting kindly is wealth-maximizing if it prevents employees from colluding. Conventional economic reasoning based on the standard assumptions that individuals maximize their own utility, that their utility is a concave function of (only) their monetary payoff, and that this is common knowledge, leads to the prediction that in equilibrium managers will be unkind and employees will not propose collusion. This prediction holds for both non-transparent and transparent organizations. In Appendix 1 we derive this equilibrium prediction using the parameters from the experiment..

[13] The study was approved by the ethics committee of the school where the experiment was conducted.

[14] The number of participants per session varied because some registered participants did not show up.

Employee decision:	Other employee decision:		Manager decision:		NOT SHARE	SHARE
NOT APPROACH			NO AGREEMENT	Manager points	**1400** (a + c)	**1200** (a + c – d)
				Employee points	**800** (b)	**1000** (b + d)
APPROACH	NOT APPROACH		NO AGREEMENT	Manager points	**1400** (a + c)	**1200** (a + c – d)
				Employee points	**200** (b – e)	**400** (b + d – e)
	APPROACH		AGREEMENT	Manager points	**600** (a + c – f)	**400** (a + c – d – f)
				Employee points	**1000** (b – e + f)	**1200** (b + d – e + f)

Fig. 1. The normal form of the experimental game in Experiment 1.
This figure presents the decisions of the employees and the managers and the payoffs of these decisions in Experiment 1. The notation is as follows: a = manager fixed salary = 1,000, b = employee fixed salary = 800, c = discretionary budget = 400, d = transfer from manager to employee if manager choses to share = 200, e = collusion cost incurred by employee = 600, f = collusion gains for employee/collusion loss for managers = 800.

than those of participants in the role of employee (€13.12).

Participants arrived individually in a waiting room and publicly received general instructions before moving to the computer lab. Detailed instructions were provided in the form of a hard copy handout. Participants had 10 min to read the instructions before the computer task started. They could refer back to the handout at all times during the session. The computer task was programmed in z-Tree (Fischbacher, 2007). It consisted of four stages: a quiz to assign roles, a task-understanding quiz, the main task, and an exit questionnaire.

The role assignment quiz consisted of fifteen multiple-choice questions and one open question. All questions asked participants to estimate a number. In each session, participants with an above-median number of correctly answered multiple choice questions were assigned the role of manager, and participants with a below median score were assigned the role of employee, with the open question serving as a tie breaker. We assigned roles based on a quiz score to strengthen participants' perception of the legitimacy of the role assignment and the manager-participants' sense of the deservedness of their "privileged" position (Douthit & Majerczyk, 2019; Guo et al., 2020; Oxoby & Spraggon, 2008).[15] The role assignment quiz was followed by a task-understanding quiz that participants had to pass before they could proceed to the main task.

The main task consisted of one practice round and ten real rounds. Participants remained in the same transparency condition (low transparency or high transparency) from the first to the last round. At the beginning of each round, the computer randomly and anonymously matched two employees and two managers to form one organization with two departments. At the end of each round, all players learned their payoff for that round. Managers learned whether a collusive agreement was made, but when there was no agreement, they did not learn whether their own employee or the other department's employee attempted collusion.

After finishing the last round, participants filled out an exit questionnaire that contained questions about their thoughts and feelings during the experiment and instruments to measure their social value orientation, risk preference (Holt & Laury, 2002), and self-reported risk attitude. At the end of each session, one round of

[15] An alternative was to assign roles randomly. However, the dynamics of superior-subordinate relationships in the lab can be influenced by whether role assignment is perceived to be legitimate (Douthit & Majerczyk, 2019). In our setting, if participants assigned to the role of employee would consider this assignment illegitimate this might affect their interpretation of the collusion decision, e.g., collusion could feel as an appropriate tactic to restore fairness. Using a quiz to assign roles considerably reduces the likelihood of such feelings. Notably, we have no reason to believe that our results are somehow contingent upon the role assignment mechanism.

Table 1
Summary statistics Experiment 1.

	Low Transparency		High Transparency		Overall	
	n	M	n	M	n	M
% kind managers	240	34.58	280	47.86	520	41.73
% employees initiating collusion	240	45.42	280	43.57	520	44.42
% collusive agreements	120	19.17	140	28.57	260	24.23

This table presents summary statistics about the decisions of the managers and the employees and the outcomes of these decisions in Experiment 1. We manipulate the level of transparency at two levels: low and high. In the (low) high transparency condition, employees and managers (do not) observe whether the manager of the other department shared the discretionary budget with her employee before the employees decide on initiating collusion.
% kind managers is the percentage of managers who shared the discretionary budget with their employee.
% employees initiating collusion is the percentage of the employee who approached his/her peer for collusion.
% collusive agreements is the percentage of organizations in which a collusive agreement was made. A collusive agreement is made if and only if both employees approached their peer for collusion.

Table 2
Collusion initiation under different scenarios Experiment 1.

		Own manager					
		Unkind		Kind		Overall	
Low Transparency	Other manager unkind	n	104	n	53	n	157
		M	0.50	M	0.42	M	0.47
	Other manager kind	n	53	n	30	n	83
		M	0.45	M	0.37	M	0.42
	Overall	n	157	n	83	n	240
		M	0.48	M	0.40	M	0.45
High Transparency	Other manager unkind	n	82	n	64	n	146
		M	0.85	M	0.28	M	0.60
	Other manager kind	n	64	n	70	n	134
		M	0.39	M	0.13	M	0.25
	Overall	n	146	n	134	n	280
		M	0.65	M	0.20	M	0.44
Overall	Other manager unkind	n	186	n	117	n	303
		M	0.66	M	0.34	M	0.53
	Other manager kind	n	117	n	100	n	217
		M	0.42	M	0.20	M	0.32
	Overall	n	303	n	217	n	520
		M	0.56	M	0.28	M	0.44

This table presents observed means indicating the proportions of employees choosing to initiate collusion in different scenarios constituted by the levels of *Transparency*, *Own_manager_kind*, and *Other_manager_kind*. We manipulate the level of transparency at two levels: low and high. In the (low) high transparency condition, employees and managers (do not) observe whether the manager of the other department shared the discretionary budget with her employee before the employees decide on initiating collusion.
Own manager (unkind) kind refers to the scenario in which the manager of the employee (did not share) shared the discretionary budget with the employee.
Other manager (unkind) kind refers to the scenario in which the manager in the other department of the organization (did not share) shared the discretionary budget with her employee.

the main task was randomly selected as pay round and only the payoffs from this round were paid out.

3.3. Results

3.3.1. Summary statistics and preliminary analyses

We first check our data for selection bias. Independent sample *t*-tests show that participants in the two conditions are similar in terms of age, gender, work experience, self-reported math ability, self-reported risk attitude, and social value orientation (all $p > 0.10$). We do find a marginally significant difference in mean risk-preferences using the Holt and Laury (2002) instrument with hypothetical payoffs, as participants in the high transparency condition are more risk-averse than participants in the low transparency condition ($t_{102} = -1.77$, $p = 0.08$).[16]

We then look at the variables of interest. In total, we have data from 572 manager-employee dyads ([104 participants ÷ 2 roles] × 11 rounds). In subsequent analyses, we ignore the observations from the 52 dyads from the practice round and focus on the data from the remaining 520 dyads (240 in the low transparency condition and 280 in the high transparency condition).[17] Table 1 displays summary statistics. In the low transparency condition, managers in 34.58% of the dyads decided to share the discretionary budget with their employee, while in the high transparency condition sharing occurred in 47.86% of the dyads. Turning to the employees, we find that in the low transparency condition, employees in 45.42% of the dyads attempted collusion, while in the high transparency condition employees in 43.57% of the dyads did so. The proportion of organizations in which collusive agreements emerged was 19.17% in the low transparency condition and 28.57% in the high transparency condition.

Table 2 contains descriptive statistics about the employees' collusion initiation decisions in the eight possible scenarios in the experiment, that is, for each different combination of transparency, own-manager kindness, and other-manager kindness. The data show that when peers were treated unkindly (i.e., the manager in the other department did not share the budget), 47% of employees in the low transparency condition initiated collusion, whereas 60% of employees in the high transparency condition did so. In contrast, when peers were treated kindly, 42% of employees in the low transparency condition initiated collusion, whereas 25% of the employees in the high transparency condition did so. These figures are in line with Hypothesis 1. Also, in line with Hypothesis 2, when employees themselves were treated unkindly (kindly), they initiated collusion in 48% (40%) of the cases in the low transparency condition and 65% (20%) of the cases in the high transparency condition.

3.3.2. Hypothesis tests

We begin our formal hypotheses tests with the analysis of the employees' collusion initiation decisions. For this purpose we create three dummy variables: *Transparency*, which equals 1 if the observation is from the high transparency condition and 0 if the observation is from the low transparency condition, *Own_manager_kind*, which equals 1 if the employee's own manager shared the budget and 0 if the own manager did not share, and *Other_manager_kind,* which equals 1 if the manager in the other department shared the budget with her employee and 0 if the other

[16] Our results are inferentially unchanged if we control for demographics, including the risk preference measure.

[17] Our inferences do not change if we include the data from the practice round.

Table 3
Parameter estimates in models predicting employee collusion Experiment 1.

	Model 1					Model 2				
	B	Std. Error	Exp(B)	z-stat	Sig.	B	Std. Error	Exp(B)	z-stat	Sig.
(Intercept)	1.15	0.39	3.17	2.96	<0.01	0.71	0.42	2.04	1.71	0.09
Transparency	0.49	0.40	1.63	1.22	0.22	1.50	0.56	4.49	2.67	<0.01
Own_manager_kind	−1.41	0.31	0.25	−4.52	<0.01	−0.56	0.39	0.57	−1.44	0.15
Other_manager_kind	−0.92	0.23	0.40	−4.03	<0.01	−0.20	0.30	0.82	−0.66	0.51
Transparency × *Own_manager_kind*						−1.93	0.67	0.14	−2.90	<0.01
Transparency × *Other_manager_kind*						−1.65	0.51	0.19	−3.22	<0.01
Own_manager_kind × *Other_manager_kind*						0.20	0.48	1.23	0.42	0.67
Period	−0.13	0.03	0.88	−3.76	<0.01	−0.10	0.04	0.90	−2.97	<0.01

This table presents the parameter estimates of two binary logistic models estimated using Generalized Estimating Equations. The dependent variable in both models is *Collude*. Model 1 is a main-effect-only model and Model 2 includes the two-way interactions between the independent variables. Both models are estimated with an exchangeable working correlation matrix structure. The standard errors are robust. We manipulate the level of transparency at two levels: low and high. In the (low) high transparency condition, employees and managers (do not) observe whether the manager of the other department shared the discretionary budget with her employee before the employees decide on initiating collusion.
Collude equals 1 if the employee approached his/her peer for collusion and 0 otherwise.
Transparency equals 1 in the high transparency condition and 0 in the low transparency condition.
Own_manager_kind equals 1 if the manager of the employee shared the discretionary budget with the employee and 0 otherwise.
Other_manager_kind equals 1 if the manager in the other department of the organization shared the discretionary budget with her employee and 0 otherwise.
Period is the period in the experimental session, ranging from 2 to 11 (period 1 is the practice period).

manager did not share.[18]

We analyze the data using Generalized Estimating Equations (GEE) (Ballinger, 2004; Zeger & Liang, 1986). This method is well suited for our dataset, which is characterized by non-independent time-series observations (due to the repeated observations at the level of the individual participants) and a binary dependent variable. It is also suitable for our purpose, which is to estimate the population average effect of the independent variables (e.g., Hubbard et al., 2010). We use GEE to estimate a binary logistic model. The dependent variable is *Collude*, which is a dummy that equals 1 if the employee initiated collusion and 0 otherwise. The independent variables are *Transparency*, *Own_manager_kind*, and *Other_manager_kind*, and the model also includes the three two-way interaction terms.[19] In addition, it includes *Period*, a variable that indicates the experimental round of the observation, as a covariate. We estimate the model with an exchangeable working correlation matrix structure.[20]

Model 2 in Table 3 displays the results. For comparison, this table also reports the results for a model without interaction terms (Model 1). We report parameter estimates, odds ratios, robust standard errors, *z*-statistics, and *p* values for each term in the models. The Model 1 results show significantly negative effects of *Own_manager_kind* ($B = -1.41$; $SE = 0.31$; $z = -4.52$; $p < 0.01$) and *Other_manager_kind* ($B = -0.92$; $SE = 0.23$; $z = -4.03$; $p < 0.01$). Consistent with our hypotheses, the Model 2 results indicate that these direct effects depend on the level of *Transparency*. Specifically, the coefficient of the interaction between *Transparency* and *Other_manager_kind* is negative and significant ($B = -1.65$; $SE = 0.51$; $z = -3.22$; $p < 0.01$), indicating that the extent to which increasing transparency affects employees' tendency to initiate collusion depends on how potential partners in crime are treated by their managers. This result supports H1. The interaction between *Transparency* and *Own_manager_kind* is also negative and significant ($B = -1.93$; $SE = 0.67$; $z = -2.90$; $p < 0.01$), suggesting that increasing transparency is also more likely to reduce collusion initiation for employees who themselves are treated kindly than for employees who themselves are treated unkindly. This result supports H2.[21]

To illustrate how transparency interacts with manager kindness in affecting collusion, we compare predicted marginal means of *Collude*, based on the results of Model 2 in Table 3. Table 4 displays the comparisons. H1 implies that transparency will increase collusion initiation if it reveals that a peer is treated unkindly and will decrease collusion initiation if it reveals that a peer is treated kindly. The results in Table 4 indeed show that when the other department's manager acted unkindly, the predicted mean of *Collude* is higher in the high transparency condition than in the low transparency condition, and that this difference is marginally significant (0.61 vs. 0.46, Wald $\chi^2(1) = 2.98$; $p = 0.08$). Also, when the other department's manager acted kindly, the predicted mean of *Collude* is lower in the high transparency condition than in the low transparency condition, and this difference borders on statistical significance (0.26 vs. 0.42, Wald $\chi^2(1) = 2.59$, $p = 0.11$). These findings are largely consistent with H1.

Next, we illustrate how transparency interacts with employees' own managers' kindness. When an employee's own managers acted unkindly, the predicted mean of *Collude* is higher in the high transparency condition than in the low transparency condition, and

[18] Note that these three variables are not independent because the level of transparency likely affected the managers' sharing decisions. Thus, as is common in economic experiments (e.g., Bartling, Fehr, & Schmidt, 2012; Maas et al., 2012; Martin & Moser, 2016) our experimental design combines elements of a quasi-experiment with those of a controlled experiment. For the purpose of analyzing the determinants of the employees' collusion decisions, the fact that the managers' sharing decisions are endogenous is inconsequential (i.e., from an econometric viewpoint, when comparing employees' decisions across conditions, the question how these conditions were created - deliberately, by the experimenter, or naturally, through decisions made by other participants - is irrelevant). However, the quasi-experimental setup does result in unequal cell sizes (i.e., unequal numbers of observations per experimental cell). Our data analysis method does not assume equal cell sizes.

[19] We leave out the three-way interaction between *Transparency*, *Own_manager_kind*, and *Other_manager_kind,* because we do not hypothesize a three-way interaction. Untabulated results of a model that includes this three-way interaction show that the three-way interaction term is insignificant ($B = 1.28$; $SE = 1.03$; $z = 1.24$; $p = 0.22$) and our inferences remains unchanged.

[20] The results are robust and inferentially similar if we use alternative correlation structures, including an autoregressive (AR(1)) structure and an independent structure. Model fit, as assessed using the Quasi Likelihood under Independence Model Criterion (QIC), varies little across alternative specifications of the correlation structure.

[21] As is clear from Table 3, there is a significantly negative effect of *Period* on *Collude* indicating that employees were less likely to choose collusion in later rounds of the experiment compared to earlier rounds. Specifically, the odds ratio for *Period* in Model 2 is 0.90, roughly indicating that in every period the odds of an employee choosing collusion are 90 percent of what they were in the previous round.

Table 4
Contrasts of predicted marginal means Experiment 1.

Hypothesis 1: Transparency interacts with the kindness of the peer's manager in affecting employee collusion initiation					
	Transparency		Δ	χ^2	Sig.
	0	1			
Other_manager_kind = 0	0.46	0.61	0.15	2.98	0.08
Other_manager_kind = 1	0.42	0.26	−0.16	2.59	0.11
Hypothesis 2: Transparency interacts with the kindness of the employee's own manager in affecting employee collusion initiation.					
	Transparency		Δ	χ^2	Sig.
	0	1			
Own_manager_kind = 0	0.49	0.67	0.18	3.13	0.08
Own_manager_kind = 1	0.37	0.18	−0.19	3.39	0.07

This table contains contrasts of estimated marginal means of *Collude* to illustrate that the found interaction effects are of the form predicted by Hypothesis 1 and Hypothesis 2. The estimated marginal means are derived from Model 2 in Table 3. We manipulate the level of transparency at two levels: low and high. In the (low) high transparency condition, employees and managers (do not) observe whether the manager of the other department shared the discretionary budget with her employee before the employees decide on initiating collusion.
Collude equals 1 if the employee approached his/her peer for collusion and 0 otherwise.
Transparency equals 1 in the high transparency condition and 0 in the low transparency condition.
Own_manager_kind equals 1 if the manager of the employee shared the discretionary budget with the employee and 0 otherwise.
Other_manager_kind equals 1 if the manager in the other department of the organization shared the discretionary budget with her employee and 0 otherwise.

Table 5
Parameter estimates in models predicting manager kindness Experiment 1.

	Model 1					Model 2					Model 3				
	B	Std. Error	Exp(B)	z	Sig.	B	Std. Error	Exp(B)	z	Sig.	B	Std. Error	Exp(B)	z	Sig.
(Intercept)	−0.64	0.39	0.53	−1.64	0.10	−0.05	0.36	0.95	−0.13	0.90	−0.89	0.38	0.41	−2.35	0.02
Transparency	0.55	0.44	1.74	1.26	0.21	−0.51	0.54	0.60	−0.95	0.34	1.00	0.50	2.72	2.01	0.04
Period	0.00	0.03	1.00	0.02	0.99	−0.09	0.04	0.91	−2.44	0.02					
Transparency × *Period*						0.16	0.06	1.18	2.72	<0.01					

This table presents the parameter estimates of three binary logistic models estimated using Generalized Estimating Equations. The dependent variable in all three models is *Kind*. Model 1 is a main-effects-only model and Model 2 includes the *Transparency* × *Period* interaction term. Model 3 includes only *Transparency* as independent variable and is estimated using data from periods 7–11 only. All models are estimated with an exchangeable working correlation matrix structure. The standard errors are robust.
We manipulate the level of transparency at two levels: low and high. In the (low) high transparency condition, employees and managers (do not) observe whether the manager of the other department shared the discretionary budget with her employee before the employees decide on initiating collusion.
Kind equals 1 if the manager shared the discretionary budget with the employee and 0 otherwise.
Transparency equals 1 in the high transparency condition and 0 in the low transparency condition.
Period is the period in the experimental session, ranging from 2 to 11 (period 1 is the practice period).

this difference is marginally significant (0.67 vs. 0.49, Wald χ^2 (1) = 3.13, p = 0.08). Conversely, when the employee's own manager acted kindly, the predicted mean of *Collude* is lower in the high transparency condition than in the low transparency condition, and this difference is also significant at the 10% level (0.18 vs. 0.37, Wald χ^2 (1) = 3.39, p = 0.07). These results show that increasing transparency is more likely to reduce employees' tendency to initiate collusion when their own manager treats them more kindly. This is consistent with H2.[22]

Our final hypothesis, H3, predicts that transparency increases the kindness of managers toward their employees. To evaluate the support for this hypothesis, we first create a dummy variable *Kind* which equals 1 if a manager shared the discretionary department budget and 0 otherwise. We then specify a GEE model in which *Transparency* is the independent variable and *Kind* is the dependent variable. We also include *Period* as a covariate.

Model 1 in Table 5 presents the results. Inconsistent with H3, the effect of *Transparency* on *Kind* is not significant at conventional levels (B = 0.55; SE = 0.44; z = 1.26; p = 0.21). To examine whether the effect of transparency on manager kindness changes over the course of the ten rounds of the experiment, we also run the model with a *Transparency* × *Period* interaction term included. The results are reported as Model 2 in Table 5. The results show that the interaction term is significantly positive (B = 0.16; SE = 0.06; z = 2.72; p < 0.01), indicating that *Transparency* had a more positive effect on *Kind* in later periods. To further examine the nature of this interaction, we plot the sharing decisions of the managers in the two transparency conditions in each of the ten rounds in Fig. 2. As is clear from Fig. 2, the proportion of managers acting kindly gradually decreases over the time in the low transparency condition, but not in the high transparency condition. The significant coefficient of *Period* in Model 2 in Table 5 (B = −0.09; SE = 0.04; z = −2.44; p = 0.02) also indicates that the effect of *Period* on *Kind* is negative in the low transparency condition (i.e., when *Transparency* = 0). Conversely, untabulated results show that the effect of *Period* on *Kind* is positive in the high transparency condition, but this effect only borders on statistical significance (B = 0.07; SE = 0.05; z = 1.51; p = 0.13). Finally, we estimate a model with *Transparency* as the single predictor of *Kind* using only the observations from the second half of the experiment (periods 7 through 11) (see Model 3 in Table 5). Results suggest a significantly positive effect of *Transparency* on *Kind* (B = 1.00; SE = 0.50; z = 2.01; p = 0.04). We conclude that, overall, there is mixed support for H3, as the predicted difference in manager kindness between the high and low transparency conditions is only present in later periods.

[22] Three participants in the employee role (all in the low transparency condition) choose collusion in all ten rounds of the experiment. Our results are robust to excluding these participants. Both the interaction effect of *Transparency* and *Other_manager_kind* on *Collude* (z = −2.89, p < 0.01) and the interaction effect of *Transparency* and *Own_manager_kind* on *Collude* (z = −2.87, p < 0.01) are negative and significant.

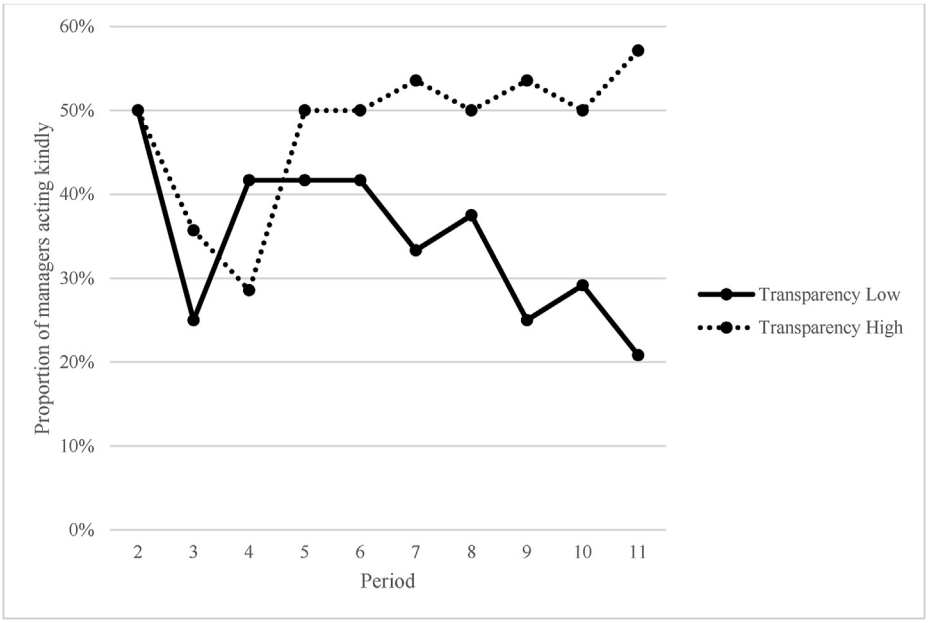


Fig. 2. Change over time in proportion of managers acting kindly in Experiment 1.
This figure presents the percentage of managers choosing to share the discretionary budget with their employee from period 2 to 11 in the high transparency and the low transparency conditions in Experiment 1, respectively (period 1 is the practice period). We manipulate the level of transparency at two levels: low and high. In the (low) high transparency condition, employees and managers (do not) observe whether the manager of the other department shared the discretionary budget with her employee before the employees decide on initiating collusion.

3.3.3. Supplemental analyses

In this section, we report the results of several analyses that shed additional light on the factors that drive the behavior of the employees and the managers in our experiment, and we look at the overall effect of transparency on collusion.

We first use the data collected through the post-experimental questionnaire to verify that employee behavior was driven by reciprocal motives. In support of this idea, we find that employees agreed they were more likely to initiate collusion when their own managers did not share the budget ($M = 4.98 > 4$, $t_{52} = 2.941$, $p < 0.01$).[23] Employees also indicated that punishing their manager for not sharing was a consideration when deciding about collusion ($M = 5.10 > 4$, $t_{52} = 3.947$, $p < 0.01$), and employees who agreed more strongly with this statement colluded more frequently ($\rho = 0.29$, $p = 0.037$). We next consider the key premise of our theory that individuals are able to anticipate others' reciprocal motives. In support of this premise, we find that employee-participants indicated that they assumed that peers were more likely to initiate collusion when their managers did not share ($M = 5.61 > 4$, $t_{51} = 6.128$, $p < 0.01$). Employees in the high transparency condition also reported that they were more likely to initiate collusion when peers' managers did not share ($M = 6.04 > 4$, $t_{27} = 7.416$, $p < 0.01$). Manager-participants indicated that they generally agreed that they wanted to use their kind behavior to discourage employees from initiating collusion ($M = 4.92 > 4$, $t_{51} = 3.398$, $p < 0.01$). This result indicates that managers, on average, also anticipated the employees' reciprocity.

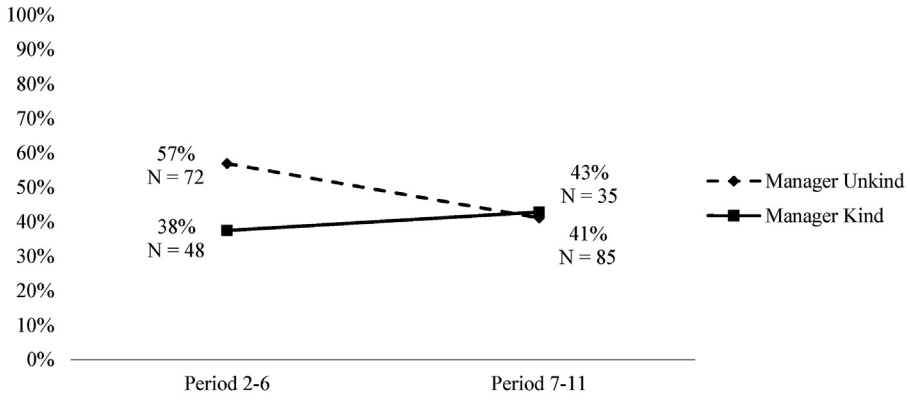
Next, we explore why we did not find a difference between managers' kindness in transparent vs. non-transparent conditions until later periods. Fig. 2 shows that managers in the low transparency condition reduced their kindness over time. We conjecture that a potential reason for this reduction in kindness is that employees stopped conditioning their collusion decisions on their own treatment over time only in the low transparency condition, allowing managers to get away with unkind behavior. To test this conjecture, we explore whether employees' responses to managers' actions evolved differently in the two experimental conditions.

Panel A of Fig. 3 displays the observed means of *Collude* in low transparency organizations in the first and second half of the experiment, distinguishing between employees with kind and unkind managers. We observe a difference in the frequency of collusion attempts between these two groups of employees only in the first half. To formally test this observation, we estimate GEEs with *Collude* as the dependent variable and *Second_half* (a dummy that takes on the value 1 in periods 7 through 11 and zero otherwise), *Own_manager_kind* and the interaction between *Second_half* and *Own_manager_kind* as predictors and compare marginal means. Untabulated results show that the likelihood of employees initiating collusion is higher for employees of unkind managers than for employees of kind managers in the first half of the experiment ($\Delta M = 0.18$; $SE = 0.08$; Wald χ^2 $(1) = 4.79$; $p = 0.03$). However, this difference is not significant in the second half of the experiment ($\Delta M = 0.03$; $SE = 0.13$; Wald χ^2 $(1) = 0.06$; $p = 0.81$). Untabulated results further show that collusion initiation attempts were less likely to be successful under low transparency than under high transparency ($\Delta M = 0.09$; $SE = 0.05$; Wald χ^2 $(1) = 3.73$; $p = 0.05$). Taken together, these findings suggest that the absence of transparency makes the collusion decision risky for employees. Over time, employees in non-transparent organizations stopped retaliating against unkind managers, such that in later periods kind and unkind managers were facing similar odds of their employee initiating collusion. This may explain why managers in the low transparency condition decreased their kindness over time.

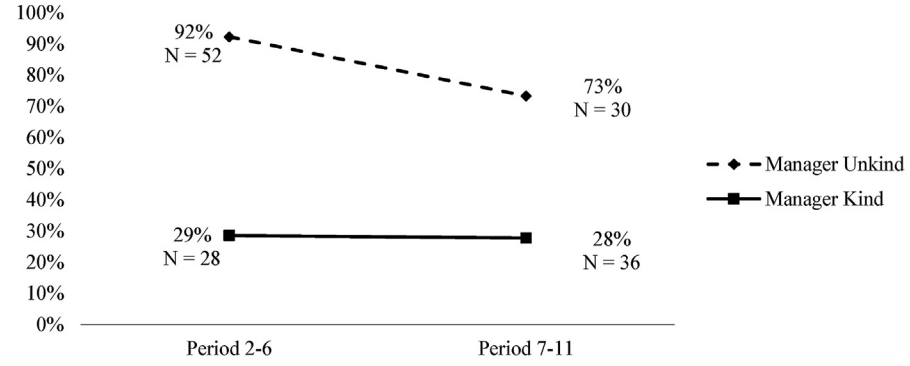
Turning to the high transparency condition, we have to take into account the kindness of the other department's manager. We therefore estimate separate GEEs for the subsample of employees with unkindly treated peers and the subsample of employees with

[23] Participants rated their agreement with each item reported in this section on a 7-point Likert scale (1 = Strongly disagree; 7 = Strongly agree).

Panel A: Proportion of employees choosing to initiate collusion in the *Low Transparency* condition



Panel B: Proportion of employees choosing to initiate collusion in the *High Transparency* condition when the manager of the other department is *Unkind*



Panel C: Proportion of employees choosing to initiate collusion in the *High Transparency* condition when the manager of the other department is *Kind*

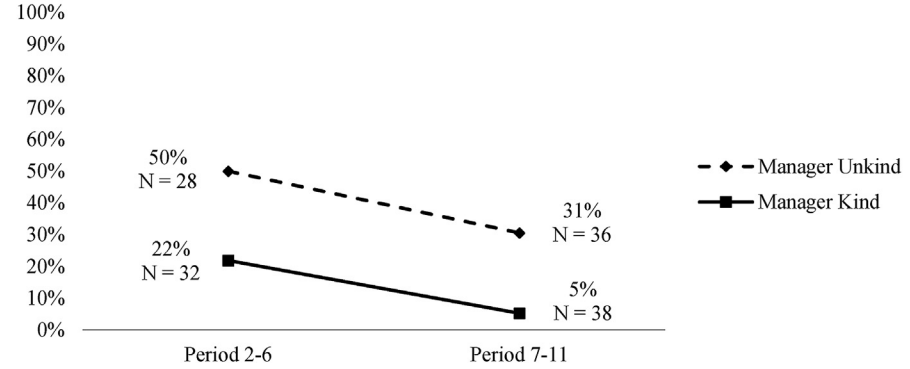


Fig. 3. Proportion of employees choosing to initiate collusion in the first half and the second half of Experiment 1.
This figure depicts the proportion of employees initiating collusion in the first half and the second half of the ten periods of Experiment 1, distinguishing between settings in which the employee'
s own manager was kind and unkind. Panel A presents the proportions for the low transparency condition. Panel B presents the proportions for the high transparency condition in the situation that the manager of the other department acted unkindly and Panel C presents the proportions for the high transparency condition in the situation that the manager of the other department acted kindly. Period 1 is the practice period. We manipulate the level of transparency at two levels: low and high. In the (low) high transparency condition, employees and managers (do not) observe whether the manager of the other department shared the discretionary budget with her employee before the employees decide on initiating collusion. Manager (unkind) kind refers to the scenario in which the manager (did not share) shared the discretionary budget with her employee.

Table 6
Results experiment 2.

Panel A: Descriptive statistics

Condition	n	M	Std. Dev.	min	max
Low Transparency	139	4.67	1.71	1	7
High Transparency & Unkind peer manager	112	5.25	1.56	1	7
High Transparency & Kind peer manager	111	4.24	1.92	1	7
Overall	362	4.72	1.77	1	7

Panel B: One-way ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between-groups variance	57.050	2	28.525	9.48	<0.001
Within-groups variance	1080.209	359	3.009		
Total	1137.260	361	3.150		

Panel C: Planned comparisons between conditions

	Contrast	Std. Error	t	Sig.
High Transparency & Unkind peer manager vs. Low Transparency	0.581	0.220	2.64	0.005
High Transparency & Kind peer manager vs. Low Transparency	−0.426	0.221	−1.93	0.028

This table presents the results of Experiment 2. The descriptive statistics in Panel A refer to the dependent variable, initiation of collusion, measured as the response to the question "How likely is it that you would propose to David to submit an overly conservative work-hour estimate to realize an easier target?" on a seven point-point Likert scale, anchored (1) = Extremely unlikely and (7) Extremely likely. Panel B presents a one-way ANOVA to test whether the mean value of this variable differs between the three experimental conditions, and Panel C presents follow-up planned comparisons between conditions.

kindly treated peers. Panel B of Fig. 3 displays the proportions of unkindly and kindly treated employees choosing collusion in the first and second half of the experiment *in situations in which the manager of the other department acted unkindly* and panel C displays the same proportions in situations *in which the manager of the other department acted kindly*. Looking at panel B first, it appears that the employee reactions to manager behavior are less pronounced in the second half of the experiment. Nevertheless, comparison of the estimated marginal means indicates that the difference in collusion initiation between unkindly and kindly treated employees is still significant in the second half of the experiment ($\Delta M = 0.51$; $SE = 0.13$; Wald χ^2 $(1) = 15.48$; $p < 0.01$). Panel C shows that employees who find themselves in a situation in which the manager of the other department acted kindly toward her employee, were less likely to initiate collusion in the second half of the experiment, independent of their own treatment (i.e., both lines are downward sloping). The marginal means further show that also in this situation the difference in collusion initiation between unkindly and kindly treated employees still exists in the second half of the experiment ($\Delta M = 0.27$; $SE = 0.11$; Wald χ^2 $(1) = 6.22$; $p = 0.01$).

Taken together, we find that while managers' unkind behavior continued to meet retaliation in the form of increased collusion attempts in high transparency organizations, employees in low transparency organizations instead began to disregard their managers' unkindness as the experiment proceeded. This change in employee behavior might explain why transparency made managers act more kindly only in later periods.

Finally, we explore the overall effect of transparency on collusion initiation. We deliberately refrained from making a prediction about this overall effect because it will depend on the relative strength of the beliefs effect and the incentive effect, and our theory does not allow us to predict relative effect sizes. On the one hand, it follows from our reasoning that in more transparent organizations managers will act more kindly, and that therefore employees will be less likely to initiate collusion. On the other hand, transparency also enables aspiring colluders to identify reliable partners by revealing whether peers are treated unkindly by their managers, which in turn may increase collusion. Our results show that transparency has no overall directional effect on the frequency of collusion attempts in our experimental setting. Specifically, when we compare the predicted marginal means of *Collude* based on our main model (Model 2 in Table 3), we see that the means in the high transparency and low transparency conditions are 0.46 and 0.44, respectively. This difference is insignificant ($\Delta M = 0.02$; $SE = 0.09$; Wald χ^2 $(1) = 0.07$; $p = 0.79$).

4. Experiment 2

4.1. Purpose

Experiment 2 is designed to test the beliefs effect of transparency in a setting which is different from the setting employed in Experiment 1 in two fundamental ways: the operationalization of kindness and the sequence in which potential colluders interact. First, Experiment 1 employs a stylized setting in which kindness is operationalized as a wealth transfer from the manager to the employee. In practice, many types of kind manager behavior (e.g., providing effort to make employees feel valued, celebrating work achievements) do not involve a transfer of wealth and thus Experiment 2 employs a setting in which manager kindness has no direct wealth consequences. Second, in Experiment 1, the two potential colluders move simultaneously. In Experiment 2, potential colluders move sequentially, such that there is one clear initiator and one responder, as is frequently the case in practice (Free & Murphy, 2015; Gondowijoyo et al., 2021). We only use Experiment 2 to test H1, i.e., to examine whether transparency about how a colleague is treated by their manager affects the likelihood that an employee initiates collusion with this colleague.

4.2. Design and task

Participates read a vignette that asks them to assume they are a team manager at a consulting firm ("A&B"). To hold own-manager kindness constant, all participants are told to assume that their direct superior is an unkind person. Specifically, the vignette specifies that their boss is someone who "[…] *could not care less about whether the employees in his office are happy at work, and* […] *provides no effort at all to make employees feel comfortable and valued*." They next read that in their role of team manager their task is to provide a work hour estimate for an engagement, which will be used to set a performance target for their team. They can propose an overly conservative estimate of the required work hours,

and thus realize an easier target and higher bonus. However, this can only be done with the explicit agreement of a colleague from another unit in the firm ("David"). Participants are told to assume that they barely know this colleague and are asked to indicate the likelihood that they would propose submitting a deliberately biased estimate to this colleague. Their answer to this question (measured on a seven-point scale anchored *extremely unlikely* – *extremely likely*) is our measure of the participant's willingness to initiate collusion and constitutes our dependent variable.

We use a nested design in which we manipulate transparency as being either low or high, and within the high transparency condition we vary whether the colleague is treated kindly or unkindly by his boss. In the low transparency condition, participants read that "[…] *because within A&B little information is shared between offices (for example, there is no internal newsletter or online community), people from different offices know very little about each other's specific situation. Thus, you have no idea whether David's boss is a kind or unkind person, and David will not know that your boss is an unkind person*." In both high transparency conditions, participants instead read that "*Because within A&B much information is shared between offices (for example, there is an internal newsletter and an online community) people from different offices know a lot about each other's situation*." Participants in the kind peer manager condition subsequently read that "*Thus, you know that unlike your boss, David's boss is a very kind person, and David will also know that your boss is an unkind person*" whereas in the unkind peer manager condition participants read "*Thus, you know that, like your boss, David's boss is an unkind person, and David will also know that your boss is an unkind person*."[24]

4.3. Participants and procedures

The participants in our experiment are recruited on Amazon Mechanical Turk, using the "MTurk Toolkit" of CloudResearch.com (Litman, Robinson, & Abberbock, 2017). We recruited US participants whose first language is English, whose age is 21 or higher, and who have a minimum of five years of work experience.[25] A total of 481 participants completed our instrument. The instrument contained five attention checks that asked participants to recall case facts. For our main analysis, we rely on the data provided by the 362 (75.26%) of the participants who correctly answered all five attention checks.[26] These participants are on average 44 years old and have 22 years of work experience; 192 (53%) identify as male and 168 (46%) as female.

4.4. Results

Panel A of Table 6 contains descriptive statistics about the dependent variable in each condition, Panel B contains the results of a one-way ANOVA, and Panel C contains planned comparisons. The ANOVA results in Panel B show that the mean value of the dependent variable is significantly different across the three conditions ($F = 9.48$, $p < 0.001$). The follow-up planned comparisons in Panel C show that participants who know that their colleague is treated kindly are less likely to initiate collusion than participants in the low transparency condition, who do not know how their colleague is treated (4.24 vs. 4.67, $t_{249} = -2.64$, one-tailed $p = 0.005$). In contrast, participants who know that their colleague is treated unkindly are more likely to initiate collusion than participants in the low transparency condition (5.25 vs. 4.67, $t_{248} = 1.93$, one-tailed $p = 0.028$). These results are consistent with H1, as they suggest that the effect of transparency on collusion initiation depends on how kindly peers are treated by their manager. Thus, the findings of Experiment 2 corroborate our theory that employees care about manager kindness as such, and not only about the possible wealth effects of kindness.

This is also reflected in the answers provided in a short post-experimental questionnaire (PEQ). First, these answers indicate that participants strongly believe that managers should be kind to employees ($M = 6.32 > 4$, $t_{362} = 52.166$, $p < 0.01$). Next, the PEQ data show that, compared with participants who know that their colleague was treated kindly, participants who know that their colleague was treated unkindly are more confident that the colleague was willing to collude ($M = 4.63$ vs. 3.56; $t_{221} = 4.20$, two-tailed $p < 0.001$) and more likely to expect the colleague to be a reliable partner ($M = 5.21$ vs. 4.54; $t_{221} = 3.62$, two-tailed $p < 0.001$). A path analysis, reported in Fig. 4, further shows that these beliefs about the colleague mediate the effect of the colleague's treatment on the participant's collusion initiation. In sum, the results from Experiment 2 provide assurance that the conclusions of Experiment 1 are not limited to settings in which unkindly treated employees have lower wealth than kindly treated employees. Consistent with our reasoning, we find that employees use information about the kindness with which their peers are treated, independent of its monetary consequences, to update their beliefs about these peers' willingness to join a collusive effort.[27] Moreover, the results of Experiment 2 confirm that transparency about how colleagues are treated by their boss also affects collusion initiation in a setting in which there clearly is one initiator and one responder, and that the beliefs effect of transparency is not confined to settings in which potential colluders move simultaneously, as in Experiment 1.

5. Discussion and conclusion

In this paper, we investigate employees' decision to initiate collusion with a colleague. Building on the fundamental idea that reciprocity drives employees' willingness to engage in rent extraction, such that employees who feel mistreated by their manager are more willing to join in collusive efforts than employees who are treated well, we argue that internal transparency is an important factor in understanding collusion initiation. We focus our analysis on transparency about managers' treatment of their employees and develop hypotheses about the conditions under which employees are more and less likely to initiate collusion, and how these depend on the level of internal transparency. Across two experiments, we generally find support for our predictions.

The results from Experiment 1, a stylized lab experiment, show that increasing internal transparency on the one hand provides information to aspiring colluders (the *beliefs effect*), and on the

[24] The full instrument with the exact wording in each of the three versions of the vignette can be found in Appendix 2.

[25] To qualify for our study, MTurk workers also had to have a minimal approval rating of 95% and a minimum number of 100 accepted HITs.

[26] 533 MTurk workers clicked the HIT. Of these, 27 did not provide their informed consent and another 25 provided their consent but did not complete the whole instrument, leaving us with 481 initial observations. Our inferences are unchanged if we include data from all these 481 participants, with one exception: the (one-tailed) p-value of the contrast between the means in the low transparency and the high transparency – unkind conditions increases to 0.101.

[27] We also find evidence consistent with H2 that employees are able to anticipate peers' beliefs about themselves. Specifically, participants in the two high transparency conditions are more likely than participants in the low transparency condition to agree that their colleague would consider them a reliable partner ($M = 4.98$ vs. 4.62; $t_{360} = 2.18$, two-tailed $p = 0.03$), suggesting that participants in the high transparency conditions anticipated that their colleague would use their own unkind treatment to assess their reliability as collusion partner.

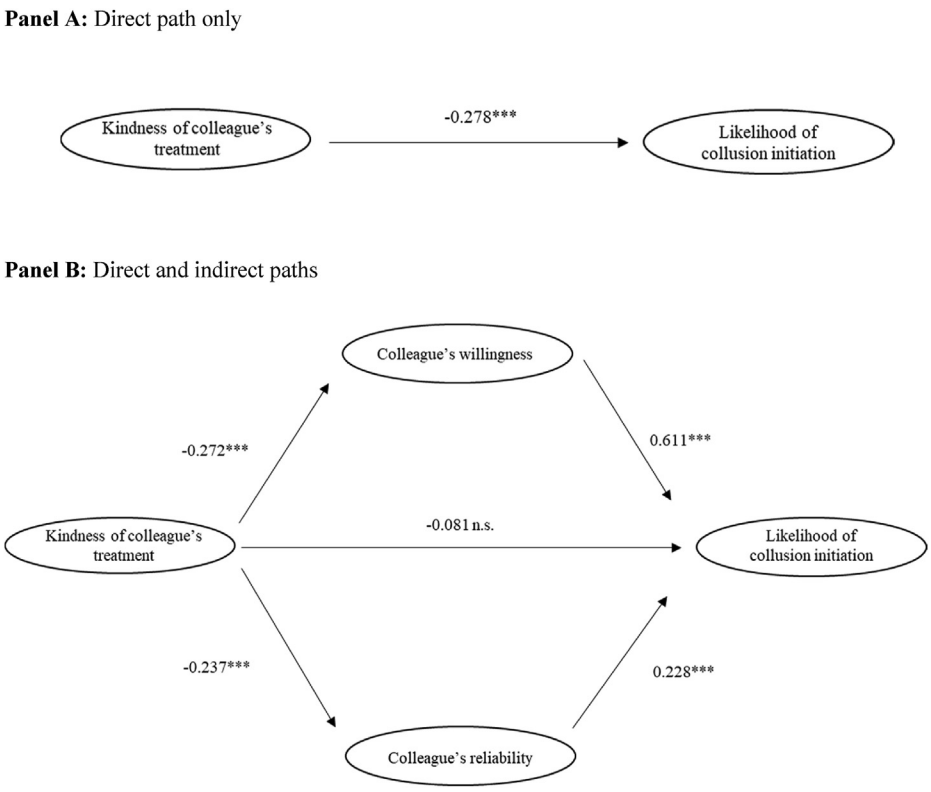


Fig. 4. Mediation analysis Experiment 2.
This figure presents the results of a path model analyzing the data collected in Experiment 2. Panel A presents the standardized coefficient of a direct path from the kindness of the colleague's treatment by their manager on the employee's indicated likelihood of initiating collusion with that colleague. Panel B presents standardized coefficients in a model where this path is mediated by the employee's beliefs about the colleague's willingness to collude and reliability as a collusion partner. The results suggest that the effect of a colleague's treatment on the employee's collusion initiation is fully mediated by beliefs about the colleague's willingness and reliability, as the direct path in panel B is no longer significant.
***p < 0.001, **p < 0.01, *p < 0.1.

other hand increases manager kindness, which in turn reduces employee collusion (the *incentive effect*). Specifically, when employees are treated unkindly (kindly) by managers, increasing internal transparency increases (decreases) their tendency to approach peers for collusion and simultaneously increases (decreases) the probability that they will be approached by peers as potential partners in crime. In addition, increasing transparency reduces the tendency of managers to become less kind towards their employees over time. Experiment 2, a vignette study, provides further evidence for the beliefs effect of transparency. The results from this experiment show that transparency and peer manager kindness jointly affect the likelihood that employees initiate collusion. Specifically, this experiment indicates that internal transparency increases (decreases) employees' tendency to approach a colleague with a collusion proposal when this colleague has been treated unkindly (kindly).

Our paper contributes to the literature in several ways. First, our findings highlight the importance of considering the role of middle managers in evaluating organizational policies. Much of the existing accounting literature has focused on principal-agent settings, ignoring the fact that middle managers often have substantial discretion in making economically relevant decisions (e.g., Aghion & Tirole, 1997; Baiman, 2014). Recent studies show, for example, that middle managers influence employees' honesty in reporting (Cardinaels & Yin, 2015; Guo, Libby, & Liu, 2017; Guo et al., 2020), and effort and motivation (Balakrishnan, Sprinkle, & Williamson, 2011; Christ, Sedatole, & Towry, 2012). Our paper adds to this literature by highlighting how the effects of an organizational policy depend on middle managers' behavior. Increasing internal transparency can either increase or decrease employee collusion initiation, depending on how kindly managers treat their employees. This result has important implications for designers of corporate policies. When implementing a new policy, firms should take into account the current situation. Specifically, organizations with a strong culture of cross-level cooperation and managers actively supporting and facilitating their subordinates likely benefit more from increasing transparency than organizations characterized by a less human-focused leadership style.

Second, our paper contributes to the literature on collusion in organizations (e.g., Evans et al., 2016; Zhang, 2008). While examining the determinants of how fraudulent parties implement their collusive agreements is clearly important (Evans et al., 2016), investigating why and when potential fraudsters initiate collusion, and how they select their partners in crime, is also likely to help us to better understand corporate crime and rent extraction. Our theory and results show that two crucial factors in determining whether potential fraudsters initiate collusion are reciprocity and potential partners' assessed willingness to join in. Specifically, unkind treatment of employees by managers triggers employees to initiate collusion attempts and knowing how others are treated by their managers helps employees assess whether others are willing to join in. Thus, if colleagues are treated unkindly (kindly), knowing this increases (decreases) employees' tendency to approach these colleagues for possible engagement in a collusive effort.

More broadly, our paper also contributes to the literature on the origins of organizational fraud, especially group fraud. Much

research in this area is qualitative in nature (e.g., Albrecht, Holland, Malagueño, Dolan, & Tzafrir, 2015; Free & Murphy, 2015; Gondowijoyo et al., 2021; Soltani, 2014; Suh, Sweeney, Linke, & Wall 2020; Van Akkeren & Buckby, 2017). We complement these qualitative results with experimental findings, thus responding to calls for diversity in fraud research (Anand, Tina Dacin, & Murphy, 2015). Notably, our findings are consistent with several of the conclusions of the qualitative work in this area. For example Gondowijoyo et al. (2021) suggest that management style and organizational culture are important factors behind individuals decisions to join or not join collusive frauds. Similarly, we show that managers' behavior affects employees' willingness to collude and that internal transparency influences how managers treat employees and whether employees approach colleagues with collusion proposals.

Our research is subject to several limitations. First, our experiments were not designed to examine the overall effect of transparency on employee collusion. While this may seem to limit the paper's practical implications, it is important to consider that this overall effect will depend on the relative strength of the beliefs effect and the incentive effect. This relative strength, in turn, likely depends on the specifics of the setting and may vary between industries and cultures. Similarly, our experiments are less well suited to examine how transparency affects collusion initiation in settings in which collusion requires that employees work together for extensive periods of time. In such settings, employees will update their beliefs about their partner's credibility and intentions as new information becomes available. While we have no reason to believe that our results will not generalize to such settings, more research is needed in this area.

Next, we designed our experiments such that managers are either kind or unkind. However, in the real-world, manager kindness will vary along a continuum. Consequently, we caution against over-interpreting the effects of transparency at particular levels of kindness or combinations of those levels. Our experiments were designed to examine whether transparency and manager kindness jointly affect employee collusion, and we cannot say much about effect sizes in any specific setting, such as the effect of transparency at any specific level of manager kindness. Closely related, in both experiments we manipulate internal transparency to be either absent or present. In real-world organizations, transparency is not necessarily dichotomous, and the amount of knowledge employees have about the decisions of other employees' managers depends on various factors (e.g., the content and/or frequency of intranet webpages, newsletters, meetings, and publicly accessible databases).

Finally, while in Experiment 1 employees and managers are anonymously re-matched at the beginning of each period, outside the laboratory managers and employees will generally interact for multiple periods, such that reputations can be formed and interpersonal (dis-)trust can develop. Also regarding Experiment 1, although we find strong empirical support for the interaction effects predicted by H1 and H2, the follow-up simple effect comparisons are only marginally significant.

We see several potentially interesting avenues for future research. First, we are looking forward to studies that take the limitations of our Experiment 1 as a starting point for further exploration. For example, future research might provide managers with a continuum of possible sharing decisions. Then employees would need to subjectively assess the extent to which a specific level of sharing signals (un-)kindness. Second, we look forward to more research that studies collusion in organizations—and examines whether and how it is affected by transparency. For example, research using questionnaires and proprietary firm data, might be able to shed more light on how and where collusive rent extraction emerges in organizations. We also think there is a need for more research on the social dynamics surrounding collusive activities and fraud. For example, it is important to better understand which types of employees take the first steps, how exactly they identify and approach potential partners, and which methods and tactics they use to convince others to join them. Finally, we encourage accounting researchers to further examine how middle managers influence the implementation and use of control systems. Research that takes into account both economic and behavioral factors in particular can produce valuable insights about management accounting and control practices (Gibbons & Henderson, 2013; Yin, 2021).

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Data availability

The instruments and data of the two experiments are available from the authors upon request.

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APPENDIX 1. Benchmark Predictions Based on Conventional Economic Reasoning for Experiment 1

In this appendix we derive benchmark predictions based on conventional economic reasoning, i.e., based on the standard assumptions that individuals maximize their own utility, that their utility is a concave function of only their monetary payoff, and that this is common knowledge. Figure A1-1presents the Stage 1 subgame and the Stage 2 subgame separately with the actual parameters from our experiment. Employing backward induction, we first look at Stage 2, the employees' collusion decisions. From the employees' perspective, the Stage 2 subgame is a coordination problem (e.g., Van Huyck, Battalio, & Beil, 1990). In this subgame there are two pure strategy Nash equilibria: both collude and both do not collude. The collusion equilibrium provides higher payoffs to both employees (the so-called wealth-dominant equilibrium) and the no collusion equilibrium provides employees with lower payoff risk (the so-called risk-dominant equilibrium). Without any information about the peer's intentions, the employees may assign a probability of 0.5 to both possible actions of their potential accomplice. With the parameters in our setting, employees should then prefer to play the risk-free no-collusion strategy, because the expected marginal payoff of that strategy is 0, whereas the expected marginal payoff of choosing collusion is −200.

Turning back to Stage 1, the managers' sharing decision: under conventional assumptions, managers will anticipate that their choice will not affect the employees' decisions in Stage 2 and therefore will choose not to share the budget. Under the

conventional assumption that employees only value wealth, the sharing decision does not affect an employee's willingness to collude. Consequently, employees will anticipate that the other department manager's sharing decision is not informative about the probability of the other employee choosing collusion. Therefore, revealing the other manager's decision in Stage 1 (i.e., introducing transparency) does not affect the decision of the focal employee, and the equilibrium outcome does not change. In summary, the predictions based on conventional economic reasoning are that employees will not propose collusion and that managers will not share, and that the level of transparency will not influence these decisions.

The first thing that you and David need to do is make a planning for the new assignment. The most important figure in that planning is the expected number of work hours for the assignment. A&B has agreed a fixed price with the new client, thus the number of work hours will not affect A&B's revenue. However, the firm will use the work-hour estimate to set a performance target for your team. As this is a new client, there is much uncertainty about the exact number of hours needed. Hence, there is a wide range of estimates that will be accepted by the firm. A more conservative estimate (a higher number of work hours) will result in an easier target, and therefore a higher bonus for you and your team. Notably, at A&B bonuses are paid from regional offices' own funds. Thus, as the bonus for your team increases, your boss has less money to spend on things of his own choice.

You strongly feel that your team deserves a proper bonus, as you have consistently been working very hard, and you have been able to overcome some major challenges. You realize that you have the opportunity to increase your team's bonus by making a very conservative estimate of the work hours. The firm wants you and David, the manager of the other team, to come up with a joint work hour estimate on which you both agree. One possibility is to discretely propose to David to submit an overly conservative estimate and cover each other's back. Then both teams would be eligible for a larger bonus (each paid from its own regional office's funds). You are very confident that your boss and David's boss will never find out that the estimate is overly conservative. You do not know David well, and you cannot be certain how he will respond to

Stage 1 Subgame:

Manager Decisions and Payoffs

Manager:	*Other Manager:*	*Share*	*Not Share*
Share		1,200 – Collusion cost *1,200 – Collusion cost*	1,200 – Collusion cost *1,400 – Collusion cost*
Not Share		1,400 – Collusion cost *1,200 – Collusion cost*	1,400 – Collusion cost *1,400 – Collusion cost*

Stage 2 Subgame:

Employee Decisions and Payoffs

Employee:	*Other Employee:*	*Collude*	*Not Collude*
Collude		1,000 + Share from manager *1,000 + Share from manager*	200 + Share from manager *800 + Share from manager*
Not Collude		800 + Share from manager *200 + Share from manager*	800 + Share from manager *800 + Share from manager*

Fig. A1. 1. The experimental game in the extensive form.
This figure presents the extensive form of the experimental game. Payoffs in regular font are for the row player (i.e., the manager or employee in the focal department). Payoffs in italics are for the column player (i.e., the manager or employee in the other department).
Collusion cost equals 0 or 600 points.
Share from manager equals to 0 or 200 points..

APPENDIX 2. Instrument Experiment 2

All conditions

Assume you are a team manager at a regional office of A&B Consulting, a large consulting firm. The director of your regional office - and thus your boss - is not a very kind person. He could not care less about whether the employees in his office are happy at work, and he provides no effort at all to make employees feel comfortable and valued. For example, he never asks how you are, never celebrates your work achievements, and only does the absolute minimum to help you.

Your team just got assigned to a new client. For this assignment, your team will work closely together with a team from another regional office of A&B. The manager of that team is called David.

such a proposal.

Low Transparency condition

Moreover, you know very little about the regional office where David works. You have heard that within A&B there is much variation in how office directors treat their team managers. Whereas some office directors, such as your boss, are inconsiderate and unkind, others go out of their way to support and develop their people. However, because within A&B little information is shared between offices (for example, there is no internal newsletter or online community), people from different offices know very little about each other's specific situation. Thus, you have no idea whether David's boss is a kind or unkind person, and David will not know that your boss is an unkind person.

High Transparency — Peer Manager Kind condition

However, you *do* know quite a lot about the regional office where David works. Within A&B, different office directors treat their team managers differently. Whereas some office directors, such as your boss, are inconsiderate and unkind, others go out of their way to support and develop their people. Because within A&B much information is shared between offices (for example, there is an internal newsletter and an online community) people from different offices know a lot about each other's situation. Thus, you know that unlike your boss, David's boss is a very kind person, and David will also know that your boss is an unkind person.

High Transparency — Peer Manager Unkind condition

However, you *do* know quite a lot about the regional office where David works. Within A&B, different office directors treat their team managers differently. Whereas some office directors, such as your boss, are inconsiderate and unkind, others go out of their way to support and develop their people. Because within A&B much information is shared between offices (for example, there is an internal newsletter and an online community) people from different offices know a lot about each other's situation. Thus, you know that, like your boss, David's boss is an unkind person, and David will also know that your boss is an unkind person.

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