

Quality of performance metrics, informal peer monitoring, and goal commitment

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Abstract

We examine whether the quality of performance metrics affects informal peer monitoring and, in turn, goal commitment. By fostering performance-oriented behaviors, performance metrics drive managers to involve themselves in learning and improvement efforts, building a fertile atmosphere for informal peer monitoring. We argue that the quality of performance metrics is positively associated with direct peer monitoring and negatively linked to indirect peer monitoring. Subsequently, we postulate that direct (indirect) peer monitoring is positively (negatively) associated with goal commitment. We use PLS to analyze survey data from store managers in a large retail firm. Results provide overall support for our hypotheses.

Keywords: *performance metrics, informal peer monitoring, goal commitment, management control, gossip, praise*

1. Introduction

In this paper we provide a comprehensive analysis of the relation between the quality of performance metrics, peer monitoring, and goal commitment. Performance metrics quality includes properties such as evaluation and rewards, clarity, attainability, controllability, precision, prioritized objectives, and cooperation. Prior work provides broad support for the determinant effect of the employee's perception of performance metrics quality on the importance attributed to goal attainment (Webb, 2004; Locke and Latham, 2006; Merchant and Van der Stede, 2012; Aranda et al., 2014). Further evidence suggests that the quality of performance metrics motivates behavioral responses, reducing uncertainties about expected behaviors and outcomes and directing employees' attention. Organizations attempt to integrate formal controls, such as performance metrics, with other informal controls in order to improve employees' motivation toward the achievement of strategic objectives (e.g., Jørgensen and Messner, 2009; Frow et al., 2010; Kennedy and Widener, 2019). Since informal control can also influence performance, acting as effective control tools, management (principals) can purposefully shape it (De Jong et al., 2014; Cardinal et al., 2017; Gackstatter et al., 2019).

Peer monitoring¹ is a form of informal control that occurs when employees at the same hierarchical level exert lateral control, scrutinizing and examining their peers without the use of formal control to enforce compliance (Loughry, 2010). Peers often have a better understanding of colleagues' work-related issues than supervisors as they commonly closely observe each other's behaviors. Peer monitoring, as a way of informal control, is important for at least two main reasons: (i) it reduces the cost of control by decreasing conflict and distrust of management,

¹ Peer monitoring is also referred to as mutual monitoring (Towry, 2003), horizontal surveillance (Widener et al., 2008), and horizontal monitoring (Sedatole et al., 2016).

and (ii) it increases organizational effectiveness by enhancing coordination, agreement, and learning (Loughry and Tosi, 2008). As a consequence, since informal controls are difficult for other organizations to imitate, they are also potential sources of competitive advantage (Turner and Makhija, 2006).

Previous management and organizational psychology literatures have identified two different forms of peer monitoring, namely direct peer monitoring and indirect peer monitoring. On the one hand, direct peer monitoring involves noticing peers' results and behaviors and responding directly and openly to them. That is, managers examine each other's actions and their achievements or failures and openly discuss how work gets done (Lye et al., 2021; Walter et al., 2021). Direct peer monitoring also comprises the discussion of how peers do their job, praising peers whose performance is above expectations and correcting underperforming peers. On the other hand, indirect peer monitoring entails behaviors like gossip (i.e., reputational information sharing) and ostracism (i.e., social exclusion), creating an unpleasant work environment and undermining trust and morale in groups (Wu et al., 2018). Although some research has been carried out on peer monitoring in the accounting (Towry, 2003; Widener et al., 2008) and economic (Jones and Kato, 1995) literatures, very little is known about the extent to which formal controls may contribute to shaping peer monitoring. Understanding the organizational effects of peer monitoring is important because it has the potential to reduce the undesirable and dysfunctional behaviors which are at the core of many agency problems (Loughry, 2002). Moreover, from a management control perspective, it has long been recognized that organizations are constantly searching for practices or systems that ensure managers look past their self-interests to focus on the organizational goals and, consequently, to increase goal commitment (Cardinal et al., 2017).

First, we argue that performance metrics create incentives for managers to informally monitor their peers. The intuition behind this postulation is that managers, pressured by performance metrics, focus attention on how to do their work and how to improve processes, thereby acting as a mechanism for informal peer monitoring (hereafter peer monitoring). That is to say, performance metrics, by stimulating task-oriented and performance-oriented behaviors, push managers to involve themselves in learning and improvement efforts, creating a fertile atmosphere for direct peer monitoring. At the same time, performance metrics quality also break the potential ‘status quo’ of indirect peer monitoring. Overall, we posit that the quality of performance metrics is positively associated with direct peer monitoring, and negatively associated with indirect peer monitoring.

Second, we postulate that direct (indirect) peer monitoring is positively (negatively) associated with goal commitment,² defined as the determination to reach a goal (Locke et al., 1988). Prior accounting literature focuses on the effects of peer monitoring as a mechanism to mitigate the free-rider problem by aligning workers’ behavior with organizational interests (Barron and Gjerde, 1997; Towry, 2003; Widener et al., 2008; Sedatole et al., 2016), mostly unaware of the unintended motivational consequences of indirect peer monitoring. In addition, some research in the management and organizational psychology literatures find that, in contrast to direct peer monitoring, indirect peer monitoring is a behavior that may not be in the best interest of organizations, and consequently, it should be rejected rather than encouraged (O’Reilly et al., 2015; Li et al., 2019). Our study provides a more comprehensive picture of the drivers of peer monitoring, both direct and indirect, and its motivational consequences (e.g., goal

² There is a strand of literature that focuses on performance metrics as internal mechanisms that affect goal commitment that, in turn, influences other variables such as employee performance or satisfaction at work (Berry et al., 2009; Wentzel, 2002). In addition, a number of studies shows that goal commitment has prominent positive effects on performance (Klein et al., 1999).

commitment). Such research is of significance not only because peer monitoring is a widespread form of control (Loughry, 2010), but also because its combined effect with formal controls constitutes the core of management control theory, playing a pivotal motivational role in managers' work attitudes and behaviors (Kreutzer et al., 2016; Mohd Sanusi et al., 2018).

Our paper relies on a quantitative survey research design. The sample consists of salaried store managers of the Brazilian division of one of the largest retail companies in the world. Analogous to other retail organizations, this division promotes frequent performance evaluation meetings, open disclosure of performance metrics reports to store managers, and frequent publication and distribution of internal performance league tables, which list, rank, and define benchmarks and targets (Ogbonna and Wilkinson, 2003) among all its more than 350 wholly-owned stores. In this organization, store managers have the same compensation package, which is based on the achievement of individual and divisional performance metrics (both financial and non-financial).

Overall, the results provide support for our theoretical model. We find a positive (negative) association between the quality of performance metrics and direct (indirect) peer monitoring. Also, we find that direct (indirect) peer monitoring is positively (negatively) associated with goal commitment. We run several additional analyses to (i) observe the effect of store performance in our model and (ii) examine decision speed as an additional outcome of peer monitoring. The first additional analysis is motivated by prior work on the peers' response to co-workers' performance indicating that the behavioral and motivational consequences of peer monitoring are shaped by the performance of peers (Lepine and Van Dyne, 2001; Jackson and LePine, 2003). The second analysis draws on past literature, which finds that fast decisions might be a reflection of past

processes, evaluations, perceptions of freedom of action, or even business settings (Isenberg, 1986; Baum and Wally, 2003), thus suggesting peers might play a role in decision speed.

The contribution of this study is threefold. First, this study adds to both the organizational design and organizational control literatures, by shedding more light on the effectiveness of horizontal control. Previous research on this area concentrates on self-managed work teams (Román, 2009; De Jong et al., 2014), where team identity (Towry, 2003) and team member dependence (Sedatole et al., 2016) are high, and contexts include direct team rewards (Pizzini, 2010). Our sample of store managers in charge of independent profit centers allows us to extend previous research by demonstrating the important motivational effect of the peer monitoring of groups of individuals acting in contexts with low team member dependence and no direct team reward but competing for resources. Second, the study explicitly recognizes the potential role of formal control (e.g., quality of performance metrics) on informal control (e.g., peer monitoring) and their motivational implications, contributing to a better understanding of the control systems from a broader perspective (Tucker, 2019). Specifically, results explain alternative control patterns scarcely captured by existing research findings. In this regard, we provide evidence that the design of horizontal controls cannot be separated from the horizontal surveillance of peer monitoring, thereby responding to recent calls to increase our understanding of the interrelationships between formal and informal controls (Cardinal et al., 2017; Gackstatter et al., 2019). Third, peer monitoring is an informal horizontal type of control that has been treated mainly as a single undifferentiated phenomenon in the accounting literature (e.g., Widener et al., 2008; Kennedy and Widener, 2019). In this sense, our contribution is also based on the discrimination of direct and indirect peer monitoring. We identify distinct consequences of peer monitoring on goal commitment derived from its direct and indirect nature.

Even though peer monitoring is exercised by co-workers, our results show that managers have an important role in providing the conditions for peer monitoring to occur and enhancing its motivational effects. This reveals important practical implications of how managers can influence employees' willingness to give direct feedback and engage in potentially difficult conversations with coworkers and avoid alternative means (i.e., through gossip and ostracism). We show that the use of performance metrics can create a feedback-rich environment, bringing stimulus to encourage employees to directly discuss how peers do their job, praise peers whose performance is above expectations, and to note those who make mistakes. However, only well-designed performance metrics function as incentive mechanisms for employees' engagement in direct peer monitoring, with lower quality performance metrics leading to indirect peer monitoring.

2. Theoretical Background

2.1. The quality of performance metrics and its behavioral consequences

Extant prior work examines the motivational effects of performance metrics on organizational participants (e.g., Marginson and Ogden, 2005; Moers, 2005; Sponem and Lambert, 2016; Endrikat et al., 2020; Uddin et al., 2020). This prior literature provides broad support for the determinant effect of the employee's perception of performance metrics quality, expressed in terms of its design properties (Kenis, 1979; Gibbs et al., 2009; Merchant and Van der Stede, 2012; Groen et al., 2017), on employees' self-efficacy, and the importance they attribute to goal attainment (Locke and Latham, 2006). Performance metrics quality includes properties such as evaluation and rewards, clarity, attainability, controllability, precision, prioritized objectives, and cooperation.

First, metrics that are perceived to be of higher quality and consequently motivate individuals are employed for performance evaluation and compensations (Giovannoni and Quarchioni, 2019). In a standard incentive plan, an extrinsic monetary compensation is provided if the achievement of goals reaches a pre-established minimum hurdle. Compensation levels off at a capped maximum performance (Jensen, 2003). Performance metrics that are associated with such rewards usually motivate direction, duration, and intensity efforts (Dekker et al., 2012). A second property that is perceived to better qualify metrics is clarity. The clarity of performance metrics refers to the extent to which metrics are well-specified and clearly understood by those who are responsible for meeting them (Kenis, 1979). Whereas ambiguous metrics can lead to confusion, anxiety, and the dissatisfaction of employees, clear metrics give employees a strong understanding of the expected behaviors and results, increasing motivation and effort (Marginson and Ogden, 2005). Third, performance metrics perceived to be of higher quality include an attainable goal. Empirical evidence indicates that difficult but attainable goals have positive effects on performance (Locke and Latham, 2006). While easily attainable goals fail to challenge organizational participants, unattainable targets lead to feelings of frustration and failure (Kenis, 1979; Aranda et al., 2014). Fourth, high-quality performance metrics are controllable. Controllable metrics are perceived as fair and stimulate behaviors that are congruent with the achievement of those. Controllability refers to the perceptions of whether the causes of performance are due to factors that are directly under a person's control (Donovan and Williams, 2003). A fifth property is precision. The goal-setting literature describes an adequate metric as one that is able to provide the best estimate of the future performance of an individual (organization) on a dimension that accurately reflects the individual's (organization's) performance potential (Dekker et al., 2012). Sixth, metrics perceived to be of higher quality

distinguish few consistent objectives that provide a sense of priority to employees (Goold and Quinn, 1990). Finally, high-performance metrics quality stimulates the cooperation of organizational participants toward the achievement of common objectives. Prior research found that the use of cooperative metrics within groups facilitates team problem solving and learning (Tjosvold et al., 2004), as it engages employees in a more open-minded discussion in conflict situations (Poon et al., 2001). Overall, the quality of the performance metrics stimulates behavioral responses by reducing uncertainties about expected behaviors and outcomes, and directing employees' attention.

2.2. Peer monitoring and its motivational function

Peer monitoring is a prevalent type of informal control that can be articulated in various ways depending on its purpose, formality, context, or organizational participants. In this paper, we focus specifically on the motivational function of peer monitoring, which involves peers monitoring each other (bidirectional) to a greater or lesser extent (asymmetric), without the use of formal means to enforce compliance (informal) nor formally reporting to supervisors (horizontal), and that encourages behavior consistent with organizational goals (congruent) (Towry, 2003; Loughry and Tosi, 2008; Sedatole et al., 2016). Therefore, peer monitoring occurs when individuals at the same level exert lateral control over their peers through social pressure (Loughry, 2010) oriented to conform to agreed-upon rules (De Jong and Dirks, 2012; Sedatole et al., 2016).

The consequence of peer monitoring on goal commitment is still an open question in the literature and the prior empirical evidence is mixed (Stewart et al., 2012; De Jong et al., 2014; Walter et al., 2021). On one hand, prior work argues that peer monitoring could reduce task response time, increasing workload and, also, curbing creative approaches to problems. Hence,

peer monitoring could lead to hostile relations, creating an unpleasant work environment. On the other hand, peer control is associated with more autonomy and empowerment, also enabling peers to detect dishonest behaviors, reducing free-riding and providing more opportunities to influence each other (Walter et al., 2021). Peer monitoring influences goal commitment by conveying normative information, persuading, highlighting role models, or generating competition (Latham and Locke, 1991). Moreover, peer monitoring also increases goal commitment by increasing learning in how peers perform specific tasks. In this vein, Malina and Selto (2001) suggest that the motivational effects of formal controls could be extended through an informal mechanism that facilitates feedback, dialogue, and participation (e.g., ‘do your best’). We hope to shed light on this relationship by analyzing both direct and indirect peer monitoring.

Direct peer monitoring involves noticing peers’ behavior and/or results and responding directly and openly to them. This response can come in different forms, such as discussing how peers do their job, praising peers whose performance is above expectations, and correcting peers who make mistakes. These practices have been associated with increased commitment, closer social relations, improved psychological attachment and loyalty to one another, and enhanced pride for being part of the group (Hsu et al., 2017). Even though direct peer monitoring is exercised by co-workers, studies show that managers play an important role in providing the conditions for peer monitoring to occur and enhancing its motivational effects (Chua et al., 2012).

Contrary to direct peer monitoring, indirect peer monitoring occurs when the recipient of the monitoring is not physically present (Loughry and Tosi, 2008). This informal control takes different forms, such as gossip (i.e., reputational information sharing) and ostracism (i.e., social

exclusion). It appears as an act of rejection and distancing, easily confounded with mistreatment, rather than an act in which peers take responsibility for their interactions with co-workers. The benefits of indirect peer monitoring as a horizontal control mechanism come at a cost of unintended harmful and corrosive effects to organizational practices, such as creating a negative social climate, an unpleasant work environment, and undermining trust and morale in groups (Wu et al., 2018). Several studies in management and organizational psychology literature have recognized that indirect peer monitoring is a behavior that is not in an organization's interests and, consequently, it should be rejected rather than encouraged (O'Reilly et al., 2015; Li et al., 2019).

Although direct and indirect peer monitoring are two dimensions of peer monitoring that can occur simultaneously in the organization, their attributes show clear-cut differences. Loughry and Tosi (2008) observe that direct peer monitoring creates a close link between co-workers' behavior and the consequences of peer interaction, while indirect peer monitoring does not explicitly link peers' actions with the consequences of monitoring and interactions. Moreover, the choice of adopting direct or indirect peer monitoring is not without tension, as managers who engage in direct peer monitoring may feel rejected if their attempts to offer guidance are ineffective. Indirect peer monitoring, however, eludes these potential risks, by expressing dissatisfaction without directly challenging anyone (Loughry and Tosi, 2008). Thus, indirect peer monitoring is the behavior to challenge since it is a "comfortable" alternative to executing horizontal control.

Drawing on different perspectives, peer monitoring has been treated mainly as a single undifferentiated phenomenon in the accounting literature (e.g., Widener et al., 2008). In this

sense, our study introduces the different dimensions of peer monitoring, discerning between direct and indirect peer monitoring.

2.3. Peer monitoring and formal control

Prior empirical evidence suggests that firms try to integrate both formal and informal management controls to increase employees' motivation for the attainment of strategic targets (e.g., Frow et al., 2010; Gackstatter et al., 2019; Kennedy and Widener, 2019). This prior work shows that the motivational effects resulting from the combination of formal and informal mechanisms of control shape the effects of managers' perception of goals on their commitment (Cardinal et al., 2004; Kreutzer et al., 2016). Hence, peer monitoring could be a mechanism that explains the motivational effectiveness of formal management controls (Jensen, 2003; Chan et al., 2014). Previous accounting research based on an agency perspective accounts for the positive motivational contributions of the combined effects of peer monitoring and formal controls (Sedatole et al., 2016). According to this literature, peer monitoring and formal controls are effective and complementary control mechanisms to reduce free-riding and increase individual effort in teams when team members are dependent on peers (Towry, 2003). Walter et al. (2021) point out that combining formal and informal controls provides additional information for decision-makers and contributes to discouraging opportunistic behaviors.

An alternative stream of literature argues that the complementarity between peer monitoring and formal goal-based controls should not be presumed (Stouthuysen et al., 2017). Thus, following Walter et al. (2021), an equally plausible alternative is that prior work overlooks managerial control, serving as an antecedent of peer monitoring (Kirsch et al., 2010; De Jong et al., 2014; Walter et al., 2021). While peer monitoring is carried out by firm members, formal control systems can influence it (Lange, 2008) by delegating control responsibilities, fostering

peer control opportunities, and streamlining work patterns (De Jong et al., 2014). Peer monitoring could be an outcome of formal control and firm members, in the subsequent stage, take part in and also maintain control of it once it is in place (De Jong et al., 2014).

Overall, although prior research offers avenues for a better understanding of the effects of combinations of peer monitoring and formal control, there is still a lack of knowledge on the nature of the relationship (Walter et al., 2021). Furthermore, the traditional unidimensional approach to peer monitoring as an effective mechanism of control (e.g., Widener et al., 2008) does not allow a full contemplation of the potential distinct effects of different dimensions of peer monitoring: direct and indirect.

3. Hypotheses development

In this section, we develop hypotheses to explain the role of performance metrics quality in shaping peer monitoring, and the effects of both different forms of peer monitoring on goal commitment. Figure 1 summarizes the hypotheses development.

[Insert Figure 1 about here]

3.1. Quality of performance metrics and peer monitoring

The “ability of accounting to convert human performance into a set of calculations helps make individual performance more visible” (Ezzamel and Willmott, 1998, p. 99). Specifically, performance metrics record and communicate the degree to which each individual achieves the objectives. Past research indicates that the intensity of peer monitoring depends on the availability of information about peers’ efforts and outputs against pre-set standards (Román, 2009; Arnold and Tafkov, 2019; Griffith et al., 2020). The availability of performance metrics

enables peers to evaluate and verify the peers' actions, detect dishonest behaviors, reduce free-riding, and provide more opportunities to influence each other (Towry, 2003). It also induces individuals to monitor because they can compare the features of one individual against another (Ezzamel and Willmott, 1998) and it allows the development of ranks based on peer performance, thus favoring competition (Malina and Selto, 2004). Therefore, performance metrics play a role in producing an account of the manager's value, ranking and position, which creates the need for monitoring and performance comparison (Cooper, 2015).

In this paper, we extend this previous knowledge by suggesting that the type of peer monitoring is influenced by the quality of the information available, i.e., the quality of performance metrics. Coworkers may exert lateral control, scrutinizing and examining their peers through direct and indirect peer monitoring. While it is widely assumed among managers that direct peer monitoring may be beneficial for the organization, indirect peer monitoring is viewed as a more "comfortable" position to exert control. The threat of feeling rejected if the attempts at direct guidance are ineffective, the reluctance to engage in the difficult face-to-face conversations and the complexity inherent to a performance evaluation process are reasons, among others, that preclude direct peer monitoring (Globis, 2016).³ Indirect peer monitoring, however, eludes these potential risks, exerting peer control without directly challenging anyone (Loughry and Tosi, 2008).

Low-quality performance metrics reinforce the propensity to engage in indirect peer monitoring because managers feel that the organization is failing to fulfill their basic needs since fairness is not being considered (Groen, 2018). Employees' perceptions of weak organizational

³ Evidence provided by Globis (2016) with a survey of over 500 managers showed that 75% believed difficult conversations and feedback were a part of their role, however, 95% were concerned about damaging the self-esteem of others, over 90% were concerned about causing upset and more than half claimed that they lacked the training and experience to properly address these functions.

support and control, with little attention to fairness and justice, lead to negative relational attitudes toward the organization and other participants (Dhanani and LaPalme, 2019), reducing the perception of the organization's dependability and belonging. This perception increases the confusion and anxiety (Passetti et al., 2020), and fosters behaviors like gossiping about the performance of other managers, or even refusing to socialize or avoiding peers who performed poorly.⁴ On the contrary, the perception that the performance metrics and measurement are based on accurate information (free of bias) and/or the goals properly reflect the employee's overall performance, provides incentives for goal congruence, and eventually the means and incentives to engage in personally costly direct peer monitoring and their consequences. In other words, high-quality performance metrics help individuals overcome their "avoidance instinct," hesitation, and anxiety so they are able to address the conversations associated with direct peer monitoring (Globis, 2016). Moreover, the disclosure of the performance metrics may induce some individuals to "game the system" (Ezzamel and Willmott, 1998; Libby and Murray Lindsay, 2010) and direct peer monitoring could be an effective way to control this inappropriate behavior (Loughry and Tosi, 2008).⁵

Prior literature on imperfect performance measures also suggests that in the presence of incomplete information, staff will either identify 'workarounds' to get the job done (Franco-Santos and Otley, 2018), or seek out information held in the performance management system

⁴ In their case study, ter Bogt and Scapens (2012) show that low quality performance metrics (i.e., lack of clarity, imprecise KPIs, or non-controllable targets) increase anxiety and stress and, at the same time, foster individuals to reallocate their time to their own benefit. In addition, the lack of clarity in the performance metrics drives additional pressures on individuals, who seek to reduce this uncertainty by getting additional 'indirect' information, in an attempt to make their work and goals "more predictable, understandable, and ultimately controllable" (Saks and Ashforth, 1997, p. 236).

⁵ As an example, Loughry and Tosi (2008) indicate that managers who understand their peers' metrics and jobs and frequently see their performance are in the best position to understand whether their actions and behaviors are suitable for the context, creating a setting of monitored tasks. Thus, informal direct peer monitoring can influence peers to conform to expectations and goals in order to get peer acceptance and praise. In addition, clear and understandable metrics allow easy detection of potential inappropriate behaviors, like gaming the system.

(Andon et al., 2007). The lack of information leads them to rely on gossip in an attempt to gather information and make further inferences regarding the underlying cause of co-workers' performance and compensations. On the contrary, high-quality performance metrics increase the level of transparency and clarity, explicitly defining procedures and outcomes; consequently reducing ambiguity among employees (Elbashir et al., 2021). This focus is likely to encourage discussions among members about how work gets done, and how to enhance procedures, thereby acting as a catalyst for direct peer monitoring. Additionally, the open disclosure of employees' performance that is comparable and clear to the participants can be viewed as an implicit organizational legitimization of direct peer monitoring (Bourmistrov and Kaarbøe, 2013; Kennedy and Widener, 2019). This is particularly relevant when the observability of daily activities and efforts are not possible when peers are geographically dispersed. This is in line with the evidence found by Globis (2016, p. 7) which suggests that the "recognition that expectations were not made clear enough" do not provide managers with the means and incentives to engage in direct peer monitoring.

In sum, the more clear, attainable, controllable, and precise the performance metrics, the more empowered, legitimized, and incentivized individuals will be to get involved in direct peer monitoring. In contrast, performance metrics that are perceived to be of low quality lead to misunderstanding and frustration, increasing organizational conflicts, gossip, and the avoidance of peers with different views and approaches to targets. This discussion suggests the following hypotheses:

- H1.** *Quality of performance metrics is positively associated with direct peer monitoring.*
- H2.** *Quality of performance metrics is negatively associated with indirect peer monitoring.*

3.2. Peer monitoring and goal commitment

Prior research shows that direct peer monitoring drives goal commitment by helping to alleviate uncertainties about expected behavior and outcomes, giving purpose and direction, and creating individual focus (Loughry and Tosi, 2008; Sedatole et al., 2016). These take place because direct peer monitoring informs on different pathways for achieving pre-established goals, opens channels for discussions, and motivates employees who are directly praised. It also provides additional assurance and understanding about acceptable and desirable behaviors (Loughry and Tosi, 2008). Direct peer monitoring fosters commitment by making expectations about peers' own behaviors more explicit and, consequently, enhancing the prominence of these expectations (De Jong et al., 2014). Moreover, direct peer monitoring signals to organizational members the consequentiality of their behaviors and actions.

Mas and Moretti (2009) found that workers exhibit cooperative behavior when they are noticed and observed by co-workers and when they are likely to interact with them again in the future. Empirical evidence exists that direct peer monitoring reduces budgetary and performance monitoring from supervisors, thereby reducing the feeling of being scrutinized (Loughry and Tosi, 2008). As a consequence, an environment of trust between supervisors and subordinates is created. Trustworthiness has been associated with higher levels of psychological empowerment (de Castro, 2017; Long, 2018) and goal commitment (Locke et al., 1988). Direct peer monitoring could facilitate the direct exchange of information among peers thereby contributing to co-workers' responses and engagement that is reflected in higher levels of goal commitment. Based on the above reasoning, we formally propose the following hypothesis:

H3. *Direct peer monitoring is positively associated with goal commitment.*

Prior research shows that the threat of being gossiped about or avoided could lead to positive consequences, such as maintaining groups against free-riding (Beersma and Van Kleef, 2012). Although these actions may constitute an effective way to constrain peers' decisions and actions, most of the literature recognizes that the overall motivational consequences are more harmful than good (Loughry and Tosi, 2008; Grosser et al., 2010; Grosser et al., 2012). On the one hand, indirect peer monitoring has been found to negatively influence employees' organizational citizenship behavior and motivation (Wu et al., 2018). Some researchers compared the consequences of being targeted by negative workplace gossip as similar to being a victim (Ellwardt et al., 2012). Studies show that perceptions of gossip could have serious negative psychological effects on individuals, detrimentally compromising their self-esteem (Wu et al., 2018) and work-related success (Grosser et al., 2012). On the other hand, avoidance represents a unique type of social mistreatment that influences attitudes and behaviors. As a form of social distancing, avoidance is a type of informal ostracism used by peers to counteract deviant tendencies and actions that threaten the larger social group's integrity (Westphal and Khanna, 2003). Previous literature has shown that workplace ostracism affects employee psychological distress (e.g., job tension and emotional exhaustion) and has a direct negative impact on the mood of employees at work (Wu et al., 2018).

Overall, indirect peer monitoring is commonly perceived by employees as a social control that is disrespectful (Loughry and Tosi, 2008), arbitrary (Cugueró-Escofet and Rosanas, 2013), and morally wrong (Loughry and Tosi, 2008), being understood as an "act of rejecting and distancing oneself from the peer rather than taking responsibility for one's interactions with the peer" (Loughry and Tosi, 2008, p. 885). Monitored peers feel uncomfortable at being indirectly scrutinized, which can create conflict and social disruptions within groups. Prior work shows

evidence of its consequences on negative social climate and an unpleasant work environment that would deteriorate trust environments and trigger behavioral problems (Baker and Jones, 1996; Wittek and Wielers, 1998). Consequently, we argue that the levels of goal commitment could be negatively related to indirect peer monitoring in the workplace. We formalize this proposal in the following hypothesis:

H4. *Indirect peer monitoring is negatively associated with goal commitment.*

4. Research methods

4.1. Research setting

Our research setting is the retail units of the Brazilian division of a multinational retailer. This division represents one of the most important operations of the parent company and it is one of the largest retail chains in Brazil (70,000+ employees, 350+ retail units and annual turnover above 9 billion USD).⁶ Retail units are wholly owned by the company and are organized as profit centers that report to regional offices. Based on their size, they are divided into: (i) convenience stores and (ii) mid-size and large-size supermarkets. Retail unit performance is tracked by a common performance measurement system designed at the company's national headquarter. The metrics are common for all retail units and are available to regional and unit managers through the corporate management information system (namely budgetary system). The compensation of store managers is composed of three elements: (i) fixed salary (66%), (ii) variable salary (34%), and (iii) an additional bonus (of about 10% of fixed salary). Variable salary is based on sales

⁶ The interpretation of results from previous research using cross-sectional data from different organizations is difficult due to the diversity in the design and use of the control systems. In our research we gather data from the stores of a single company. This allows us to control for spurious effects and explicitly distinguish the different types of effects involved in our research and testing their significance.

(30%) and net operational profit versus budgetary goals (70%) achievements. Overall performance of the division triggers the additional bonus (i.e., 10%), which is based on the regional director's discretion.⁷

This division of the company informally encourages peer monitoring over its more than 350 wholly-owned stores by openly distributing reports containing information on store performance among regional directors and store managers. Several, different in frequency, performance measurement reports (i.e., weekly, monthly, and annual) rank stores from best to worst performers in different KPIs mostly taken from the budgetary system. There are no formal guidelines linking the position of stores in the rankings to action plans. However, regional directors frequently highlight and identify the best performers (benchmarks) and discussed best practices. KPIs based in the budgetary system are the most relevant ones for our sample as they have direct influence on store managers' salaries.⁸ Managers performing below expectations are expected to take action to improve their position in the ranking.⁹

4.2. Sample

We gathered data from a survey since the data sought are not available from public sources. Respondents were store managers in charge of the operational management of the retail units. Questionnaires were developed after two interviews with different managers at retail units. Additionally, two researchers, the CFO of the division, and two operational managers from the examined company pre-tested the questionnaire, providing comments. Received feedback was

⁷ Findings from field experiment show that the type of reward determines the motivational effects on organizational participants (Lourenço, 2016). In our research, all participants are subject to the same rewards, hence controlling for the diverse motivational effects of different types of compensation.

⁸ The use of budgetary systems is widely recognized in retail firms where, for example, targets are determined by budgeted sales and expense ratios (Aranda et al., 2014; Aranda et al., 2017).

⁹ Research shows that commitment to difficult goals was higher when goals were made public rather than private (Klein et al., 2020).

used to adjust the terminology adopted (mainly issues related to getting a better translation of the original measurement instruments)¹⁰ and the order of the questions to make it more adequate for the setting. The questionnaire was designed online, and the invitation to all store managers to participate was made via e-mail sent out by the regional director of the company, who fully agreed to collaborate with this research project. This email contained a notification of the confidentiality of their responses, and also included a link to access the questionnaire. We took into account the recommendations of Dillman (2007) to compose response-friendly surveys and to ensure the personalization of the emails. Surveys were administered between November 2013 and January 2014. Furthermore, we gained access to secondary data covering the specific time of the survey on the performance of stores, which is monitored by the company. The questionnaires were sent off by the CFO of the division. Questionnaires were only sent off once, no follow-up emails were allowed under the internal procedures of the company. Of the 385 managers contacted to participate in this study, 87 responses were received, which provides a response rate of 22.6%.

Participation in the survey was optional. Thus, we investigate the possibility of non-response bias by comparing respondents and non-respondents in terms of the size and location of retail units, as well as the respondent profile (age and gender) of the targeted sample. T-tests ruled out non-response bias. The usable sample was reduced to 77, since 10 questionnaires with a considerable amount of missing data were discarded.¹¹ We compare our usable sample to the overall population of the retail units of the Brazilian division of the multinational retailer.

Previous literature states that these comparisons help provide evidence on the extent to which the

¹⁰ We conducted back-to-back translation (English-Portuguese-English) to establish semantic equivalence (Schaffer and Riordan, 2003).

¹¹ Cases with four items missing data or less were replaced using the expectation-maximization (EM) method in SPSS.

sample is representative of the overall population (Klassen et al., 2017). Table 1, Panel A, compares the size and region of our sample to the overall population, evidencing the representativeness.

[Insert Table 1 about here]

Table 1, Panel B, shows that the stores, on average, have a space of 4,646.75 m². This table also displays the mean (median) of managers' age and tenure in the firm: 36.91 (37.00), and 5.57 (4.00), respectively. Finally, Table 1, Panel B, presents the manager-education distribution of our sample.

Since we use survey data, we followed the recommendations of Podsakoff et al. (2003) to overcome problems related to common method bias. First, we ran a Harman's one-factor test by including all items in an exploratory factor analysis. Results revealed that no single factor explained the majority of the variance. Four factors with eigenvalues larger than 1.0 emerged, and the first factor explains 27% (below the 50% criterion). Second, we also ran the partial correlation adjustment procedure (Lindell and Whitney, 2001). We used the tenure and age of the respondent as the marker variables (Krishnan et al., 2006; Schilke and Cook, 2015). All significant correlations in the zero-order model remained significant after both partial correlation adjustments. Third, in the design of the survey instrument, we assured the respondent's anonymity and issued a disclaimer saying there were no right or wrong answers, reducing evaluating apprehension. Fourth, we also avoided commonalities like the use of Likert scales with similar endpoints and appearance, preventing anchoring effects (Abernethy et al., 2013). The survey pretest also helped to avoid vague concepts, kept questions simple and specific, or identified items that needed to be reworded. Overall, we conclude that common method bias was unlikely to be a significant problem in our study.

4.3. Measurement of variables

The main constructs and control variables included in this study are operationalized based on existing measures available in the literature. The appendix displays the items in the questionnaire used to measure the variables involved in the study.

The *quality of performance metrics* is understood here from an employee's perspective. It is captured as the extent to which the properties of the budgetary performance goals are perceived to be (i) clear, (ii) fostering cooperation among employees, (iii) prioritizing objectives, (iv) precise, (v) attainable, and (vi) controllable.¹² We use the budgetary performance goals as our measure of quality of performance metrics given the importance the company attributes to these metrics that constitute a significant part of the compensation given to the participants of this study. Following previous literature in accounting these properties represent the quality of the metrics (Kenis, 1979; Goold and Quinn, 1990; Gibbs et al., 2004; Groen et al., 2017). All properties are scaled (5-point Likert scale, where "1 = not at all" to "5 = very high") so that a larger value indicates a positive perception of the quality of the performance metrics.

To measure *direct and indirect peer monitoring*, we rely on an adjusted version of a construct developed by Loughry and Tossi (2008). The number of items used to capture both constructs was reduced to reflect the organizational setting and the low interdependence between managerial tasks, and also to avoid redundancies without compromising the semantic

¹² Previous literature has frequently accounted for two other properties, namely incentive and participation. We do not include these in our study, since the incentives are the same for all managers, and there is no participation in budget setting as they are top-down, designed by the headquarter. Performance targets are negotiated but not elaborated in participation with managers of retail units.

equivalences from the original scales.¹³ To measure direct peer monitoring we asked questions about the frequency in which the peers (managers in a similar position): (i) notice what peers in other units are doing in terms of management practices, (ii) notice what peers are doing at work, (iii) praise peers when they do a good job, and (iv) openly discuss performance with peers. In measuring indirect peer monitoring we asked questions about the frequency in which their peers: (i) gossip about how peers perform at work, (ii) refuse to socialize with peers who perform poorly, (iii) avoid peers who perform poorly, and (iv) gossip about the poor performance of other strategic business units managers. The scale for both constructs ranges from “1 = almost never” to “7 = very often.”

Goal commitment was measured using the validated scale of Chong and Chong (2002). Goal commitment refers to the employees’ determination to reach a goal (Locke et al., 1988) and its presence is usually identified as a consequence of the perceived quality of pre-set goals (Webb, 2004) and peer monitoring (Dhanani and LaPalme, 2019). This measure captures the view of commitment as being an attitude about a goal. We asked respondents to indicate the extent to which they agree or disagree with statements regarding the priority of achieving budget objectives, the seriousness of budget goals, and the importance of budget goals. The scale ranges from “1 = strongly disagree to 5 = strongly agree.”

We included *manager tenure* in the retail unit, *manager age*, *manager education*, *size of the retail unit*, and *customer satisfaction* as control variables. Previous literature indicates that in the early years of their service, managers have a greater incentive to show that they can achieve the objectives that favorably influence perceptions of the firm (Karuna, 2007; Ali and Zhang,

¹³ Derived from the survey pretest and the back-to-back translation process, we included eight out of 13 items from the original Loughry and Tosi’s (2008) peer monitoring scale (“correct” and “report” dimensions were dropped in this process). The low applicability of some dimensions in the research setting (i.e., low task interdependence) or the semantic issues around some items are the main reasons behind this process.

2015; Gomez-Conde et al., 2019). Both manager tenure and age were computed in years. Manager education was measured in six categories, as we noted above. Education can play a role in interpreting the performance metrics, influencing peer monitoring. In terms of size, retail units with limited resources have more problems reaching the proposed goals (Karuna, 2007). We measure the size of the retail unit by the number of employees. An alternative size measure like square meters of retail surface yields similar results. Lastly, we also included customer satisfaction since employees in customer-oriented organizations develop a personal relationship with customers, increasing goal commitment (Donavan et al., 2004). A measure of customer satisfaction was obtained from the company's annual internal survey (0–10 scale).¹⁴

Descriptive statistics for each item are reported in Table 2. Overall, quality of performance metrics and goal commitment show high values in relation to the scale, while indirect peer monitoring presents slightly higher values than direct peer monitoring. A correlation matrix is displayed in Table 3. All correlations are below $r = 0.5$. Multicollinearity is also analyzed by computing variance inflation factors (VIFs). The highest VIF across dependent variables models is 1.797 which is well below the general threshold of 10. Thus, multicollinearity is not a significant concern in our study.

[Insert Table 2 about here]

[Insert Table 3 about here]

5. Results

¹⁴ To rule out that potential correlated omitted variables drive our results, we rerun our model including an additional control variable: unit performance. All our inferences remain unchanged.

The proposed hypotheses were tested using the partial least squares (PLS) technique. PLS estimates the parameters based on the ability to minimize the residual variances of dependent variables (Ringle et al., 2015; de Castro, 2017). PLS does not make distributional assumptions and can estimate models with small sample sizes. PLS needs a minimum sample size of 10 times the largest number of independent constructs explaining a dependent construct (Ringle et al., 2015). Thus, our sample size is adequate. PLS technique employs a bootstrap method to examine the significance of each path coefficient. We use a large number of bootstraps (i.e., 5,000 bootstraps) to provide stable coefficients (Ringle et al., 2015).¹⁵

PLS simultaneously takes into account both the measurement and the structural models. The measurement model allows for an estimation of construct validity and reliability. Results in Table 2 indicate that multi-item constructs show acceptable reliability with a composite reliability score well above 0.7, and loadings above 0.4 (Bedford et al., 2019; Braumann et al., 2020).¹⁶ Variance extracted values (AVE) are also above 0.50, indicating adequate convergent validity. Finally, concerning discriminant validity, Table 3 also shows that the square roots of the AVE are all greater than with all other constructs, supporting the measures' discriminant validity. In Table 4 we run an additional test of discriminant validity, examining the heterotrait-monotrait (HTMT) ratio of the correlations, following recent developments in the management accounting measurement (Bedford and Speckle, 2018). All these correlations are well below the 0.85 cutoff value.

[Insert Table 4 about here]

5.1. Hypotheses testing

¹⁵ Data were analyzed with the statistical software SmartPLS v.3.

¹⁶ If we employ the 0.5 cutoff, two additional items must be excluded: DPM4 and QPM5. For completeness, we ran our model without both items. Results remain unchanged.

Results of the structural model used to test our hypotheses are displayed in Table 5. In addition to the hypothesized relationships, the structural model controls for (i) other non-hypothesized links (quality of performance metrics on goal commitment), and (ii) the effect of control variables.

H1 posits that the performance metrics quality is positively associated with direct peer monitoring. Results reveal a statistically and positive significant relationship providing support for H1 ($\beta = 0.318$, $p < 0.01$). H2 predicts that the quality of performance metrics is negatively associated with indirect peer monitoring. Results indicate a negative and significant association, providing support for H2 ($\beta = -0.256$, $p < 0.05$).

H3 expects a positive association between direct peer monitoring and goal commitment. The results show a positive and significant path offering support for H3 ($\beta = 0.245$, $p < 0.05$). H4 predicts that indirect peer monitoring has a negative and significant association with goal commitment. The results support this postulation ($\beta = -0.321$, $p < 0.05$).

[Insert Table 5 about here]

5.2. Additional tests: Non-hypothesized relationships

In addition to the results related to hypotheses 1–4, a number of non-hypothesized relationships arise in our theoretical model. Specifically, the quality of performance metrics is positively associated with goal commitment ($\beta = 0.311$, $p < 0.01$) in line with prior work (Webb, 2004). The quality of these metrics usually focuses on managers' attention and effort to reach the targets in their business units. Prior work offers evidence that more sophisticated performance metrics can sharpen managers' understanding of the performance drivers in their business units, increasing commitment by bolstering self-efficacy beliefs (Malina and Selto, 2001; Gumbus and

Lyons, 2002; Webb, 2004). Moreover, our model suggests two indirect effects of quality of performance metrics on goal commitment through both peer-monitoring types, direct and indirect. We performed this test for mediation using the SmartPLS tests for specific indirect effects. In non-tabulated results, we find support for these (partial) mediation effects through both direct peer monitoring ($\beta = 0.078$, $p < 0.10$) and indirect peer monitoring ($\beta = 0.095$, $p < 0.10$). These results suggest that the quality of performance metrics has a role beyond the direct effect on goal commitment, by being positively (negatively) associated with direct (indirect) peer monitoring and, subsequently, fostering (reducing) the positive (negative effect) of direct (indirect) peer monitoring on goal commitment.

5.3. Extended analysis: The role of performance in shaping peer monitoring

Literature on peers' response to co-worker's performance shows that the motivational effects of peer monitoring could be influenced by the performance of peers (Lepine and Van Dyne, 2001; Jackson and LePine, 2003). Direct peer monitoring includes deploying different informal mechanisms to enforce goal commitment among peers. In this regard, high-performing individuals are openly praised by their peers, gaining the respect and acceptance of other members (Hsu et al., 2017). These incentives are associated with closer social relations, improved psychological attachment, loyalty to one another, enhanced pride for being part of the group, and increased commitment (Hsu et al., 2017). Contrarily, low-performing individuals may resent peers who correct them, attempt to discuss their performance with them, or praise high achievers (Loughry and Tosi, 2008).

Related to indirect peer monitoring, gossiping about or avoiding high-performing individuals, although likely perceived by them as negative, is unlikely to reduce their commitment to the organizational goals. High performers are associated with self-efficacy

beliefs and they will maintain goal commitment despite indirect peer monitoring. Contrarily, the negative effects of indirect peer monitoring on commitment are expected to be stronger for low-performing individuals. Low-performing individuals may feel aggrieved when they recognize that peers are gossiping about their performance or avoiding interaction with them (Loughry and Tosi, 2008), undermining their organizational goal commitment.

Table 6 presents the results of subgroup analyses made to extend our model using performance as a splitting variable (based on the median). Performance for each retail unit in the sample was obtained from the parent company's internal accounting system. The researchers received consolidated data for the past 12 months' performance for the retail units which completed the questionnaire. This information included operational KPIs (e.g., customer satisfaction, engagement or turnover) and financial data (e.g., working capital or gross margin). In the paper, productivity (EBIT) was used to capture retail unit performance. Findings confirm these prior appreciations. Results displayed in Table 6 indicate that the effect of direct peer monitoring on goal commitment is significantly greater in the high performers' subsample (see Panel A) than in the low performers' subsample (see Panel B) ($\beta = 0.555$, $p < 0.01$, and $\beta = 0.158$, $p > 0.10$, respectively). Similarly, the negative effect of indirect peer monitoring on goal commitment is significantly greater in the low performers' subsample (see Panel B) than in the high performers' subsample (see Panel A) ($\beta = -0.415$, $p < 0.01$, and $\beta = -0.134$, $p > 0.10$, respectively). Figure 2 also shows the simple slopes for both subgroup analyses.

[Insert Table 6 about here]

[Insert Figure 2 about here]

5.4. Further analysis: Additional outcomes of peer monitoring

Overall, our findings present evidence consistent with direct (indirect) peer monitoring being positively (negatively) related to goal commitment. Our final set of tests sheds light on the consequences of peer monitoring. Specifically, we examine whether peer monitoring is relevant in a more observable managerial behavior, such as decision speed.¹⁷ Prior work argues the existence of additional benefits of direct peer monitoring (Kennedy and Widener, 2019). Thus, peers performing similar tasks, by using peer monitoring benefit from this two-way communication exchange where both agents learn about the process and the organization, which facilitates decision-making and, ultimately, increases decision speed. In their well-known study, Kahneman et al. (1982) indicate that decision speed and mistakes are, to some extent, produced by individual and organizational constraints and motivations. Direct peer monitoring, by providing additional information and attention, enables faster operational decisions. Overall, we expect that direct peer monitoring increases information flows among managers and thereby speeds decision-making (Baum and Wally, 2003). Untabulated results indicate that direct peer monitoring is positively associated with decision speed ($\beta = 0.234$, $p < 0.05$), while the effect of indirect peer monitoring is negative but non-significant ($\beta = -0.073$, $p > 0.10$).

6. Discussion and conclusions

The aim of this study was to examine the impact of the quality of performance metrics on peer monitoring and its consequences on goal commitment. We find that high quality performance metrics are positively associated with direct peer monitoring, while low quality performance

¹⁷ Decision speed was measured using nine items adapted from prior work (Baum and Wally, 2003). We ask about the approximate time it would take you/your organization to decide on the following aspects (1 = immediately, 2 = on the same day, 3 = the same week, 4 = the same month, 5 = after a month): (i) layout and display of products in store; (ii) customers' needs; (iii) expenses; (iv) employees development and training; (v) waste; (vi) inventories/stocks; (vii) food safety; (viii) procedures and routines; and (ix) human resources. The nine items showed acceptable loadings (>0.4) and composite reliability (>0.7).

metrics are negatively associated with indirect peer monitoring. We also document that direct peer monitoring is positively linked to goal commitment, whereas the association with indirect peer monitoring is negative, being a non-desired outcome by employers, and becoming a consequence of the lack of performance metrics quality. These are important findings for both academics and practitioners. Our setting to analyze these relationships, retail units, is especially interesting as they operate in a highly dynamic environment, meaning that goal commitment and performance metrics are particularly relevant.

This study contributes to the current organizational control literature in at least three ways. First, we shed more light on the effects of horizontal organizational control. Previous research in this area concentrates on self-managed work teams (Hartmann and Slapnicar, 2009; Román, 2009; De Jong et al., 2014; Sedatole et al., 2016; Kennedy and Widener, 2019). Our sample of store managers extends previous research by demonstrating the important effects of peer monitoring at the level of managers in charge of independent profit centers. Therefore this study responds to calls for a better understanding of how peer pressure happens at managerial level (Loughry and Tosi, 2008). In our study, we found that the effects of peer monitoring on motivation could be significant even in the absence of task interdependence. Although the performance of store managers was completely independent of other stores, an organizational culture that fosters frequent meetings, league tables, and highlights best practices and benchmarks creates opportunities for peer monitoring to emerge and affect motivation.

Second, we explicitly recognize the potential role of formal accounting control systems on informal control and how their motivational implications extend existing frameworks and contribute to an enhanced understanding of the control systems from a broader scope perspective (Bedford and Malmi, 2015). In doing so, we respond to recent calls for a better understanding of

the interrelationships between formal and informal controls (Cardinal et al., 2017; Gackstatter et al., 2019). Specifically, results explain alternative control patterns between performance management and peer monitoring which have scarcely been captured by existing research findings.

Third, peer monitoring has been treated mainly as a single undifferentiated phenomenon (De Jong et al., 2014). This paper models the integrated effects of the perceptions of performance metrics with both direct and indirect peer monitoring on goal commitment. We suggest that these types of peer monitoring have identifiable impacts on goal commitment. Therefore, we extend previous literature in accounting by examining different dimensions and consequences of peer monitoring.

We acknowledge that our study has several limitations. First, this research relies on a cross-sectional survey and it is therefore limited in its inferences about causality. Second, it was conducted within one organization. Although this particular choice allowed us to keep constant many of the factors that could otherwise explain the relationships explored in this research, it limited generalizability. Generalizability could be another limitation when cultural characteristics of the sample are taken into consideration. Previous research has shown that members of collectivistic and high-power-distance cultures such as in Brazil, seek feedback from peers rather than from superiors and/or subordinates. This is because with collectivistic and high-power-distance individuals feel uncomfortable about approaching their superiors and they do not expect their subordinates to criticize their boss (Taras et al., 2010). Therefore, the perceptions about peer monitoring in our sample might be even more significant than in other jurisdictions. Third, in this research we concentrate on examining the effects of performance metrics, peer

monitoring, and goal commitment. We did not investigate the potential effects of excessive peer monitoring. Future research could explore such relationships via curvilinear models.

This study also has important implications for management practitioners. Employees' lack of commitment is one of the main current organizational concerns (Gallup, 2017). Conventional wisdom holds that managers must rely on peer monitoring as a mechanism to increase employee commitment. In this regard, Turner and Makhija (2006) indicate that there is a need for managers to be aware of informal control systems because it can be a source of sustainable competitive advantage if it is used to achieve better performance. However, a superficial understanding of the effects and characteristics of peer monitoring may lead to unintended consequences. In this regard, we offer implications on how companies can make a difference in shaping peer monitoring by raising an alert for the risk that managers may overlook the harmful effects of indirect peer monitoring in employees' goal commitment.

Additionally, our study provides the important message that the design of performance metrics plays an active role in managing peer monitoring and goal commitment. In this regard, direct peer monitoring may be higher in settings where the performance metrics are perceived by employees as clear, controllable, cooperative, attainable, and precise. This quality of performance metrics provides encouragement to managers to learn from each other's behaviors and/or tasks, being beneficial to the whole organization in terms of increasing goal commitment. Furthermore, it will also reduce the level of indirect peer monitoring, which has a negative association with goal commitment. Crucially, for firms that wish to improve goal commitment by managing peer monitoring for motivational purposes, our study highlights one key remedy: increase the quality of the performance metrics. This is a potentially salient message for organizations that might doubt whether performance metrics have behavioral consequences.

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Table 1. Sample distribution and descriptives

<i>Panel A. Sample distribution</i>				
<i>By region</i>	N	%		
South	21	27.27%		
Southeast	28	36.36%		
Northeast	27	35.06%		
Centre	1	1.30%		
Total	77	100%		
<i>By store category</i>	N	%		
Large-size and mid-size supermarkets	53	68.83%		
Convenience store	24	31.17%		
Total	77	100%		
<i>Panel B. Sample descriptives</i>				
	<i>Mean</i>	<i>Median</i>	<i>S.D.</i>	<i>Min-Max</i>
Store size (m ²)	4,646.75	7,000	2,982.74	700-7,000
Manager age	36.91	37.00	5.56	25-54
Manager tenure in firm	5.57	4.00	6.12	25-32
	<i>Percentage</i>			
Education	%			
High School – not finished	7.8			
High School degree	39.0			
Undergraduate currently	23.4			
Undergraduate degree	15.6			
Postgraduate currently	1.3			
Postgraduate degree	13.0			

Table 2. Descriptives, reliability, and AVE statistics

	<i>Mean</i>	<i>Median</i>	<i>Standard deviation</i>	<i>Min-Max</i>	<i>Theoretical range</i>	<i>Loadings</i>	<i>Eigenvalue</i>	<i>Composite reliability</i>	<i>Average variance explained</i>
Quality of performance metrics	3.987	4.000	0.688	2.20-5.00	1-5	0.461-0.811	2.369	0.795	0.502
Direct peer monitoring	5.143	5.250	1.141	2.25-7.00	1-7	0.543-0.906	2.516	0.855	0.614
Indirect peer monitoring	5.273	5.667	1.262	2.00-7.00	1-7	0.559-0.902	1.883	0.778	0.589
Goal commitment	4.191	4.333	0.674	2.33-5.00	1-5	0.516-0.869	1.540	0.735	0.518
Tenure in retail unit	3.610	2.000	4.386	0-23	-	-	-	-	-
Manager age	36.909	37.000	5.556	25-54	-	-	-	-	-
Manager education	3.033	3.000	1.441	1.00-6.00	1-6	-	-	-	-
Size (employees)	184.299	206.000	123.705	25-518	-	-	-	-	-
Customer satisfaction	7.992	8.100	0.484	6.5-8.8	0-10	-	-	-	-

Table 3. Correlation matrix

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. Quality of performance metrics	<i>0.708</i>							
2. Direct peer monitoring	0.223	<i>0.784</i>						
3. Indirect peer monitoring	-0.132	0.089	<i>0.767</i>					
4. Goal commitment	0.450	0.334	-0.179	<i>0.720</i>				
5. Tenure in retail unit	0.040	-0.066	0.045	-0.019	-			
6. Manager age	-0.038	-0.066	-0.080	0.069	-0.052	-		
7. Manager education	0.114	-0.082	-0.013	0.045	0.347	-0.175	-	
8. Size (employees)	0.198	-0.102	0.018	0.113	0.397	-0.133	0.245	-
9. Customer satisfaction	0.115	0.072	0.035	0.053	-0.031	0.058	-0.077	0.325

Correlations that are significant at a 10% significance level or lower are reported in bold. Diagonal elements are the square roots of the AVE statistics.

Table 4. HTMT. Discriminant validity

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. Quality of performance metrics								
2. Direct peer monitoring	0.365							
3. Indirect peer monitoring	0.298	0.392						
4. Goal commitment	0.499	0.422	0.496					
5. Tenure in retail unit	0.166	0.149	0.135	0.170				
6. Manager age	0.111	0.201	0.148	0.210	0.092			
8. Manager education	0.069	0.133	0.115	0.061	0.100	0.008		
7. Size (employees)	0.112	0.141	0.086	0.219	0.321	0.024	0.127	
9. Customer satisfaction	0.184	0.237	0.076	0.108	0.093	0.012	0.146	0.295

Table 5. PLS structural model results: path coefficients, t-statistics, VIF and R²

<i>Independent variables</i>	<i>Dependent variables</i>		
	<i>Direct peer monitoring</i>	<i>Indirect peer monitoring</i>	<i>Goal commitment</i>
Quality of performance metrics	0.318*** (2.677)	-0.258** (1.651)	0.311*** (2.436)
Direct peer monitoring			0.245** (1.862)
Indirect peer monitoring			-0.321** (2.274)
Tenure in retail unit	0.054 (0.416)	-0.003 (0.140)	0.056 (0.555)
Manager age	-0.143 (1.052)	-0.045 (0.174)	0.048 (0.612)
Manager education	-0.063 (0.526)	-0.076 (0.637)	-0.002 (0.140)
Size (employees)	-0.226* (1.728)	0.017 (0.155)	0.090 (0.870)
Customer satisfaction	0.246* (1.716)	-0.005 (0.077)	0.245* (1.862)
R ²	0.212	0.067	0.388
Max. VIF	1.297	1.297	1.372

Each cell reports the path coefficient (t-value). *** Significant level 1%, ** Significant level 5%, * Significant level 10%, (one-tailed for hypothesized relationships, two-tailed otherwise).

Table 6. Panel A. High performance subsample. PLS structural model results

<i>Independent variables</i>	<i>Dependent variables</i>		
	<i>Direct peer monitoring</i>	<i>Indirect peer monitoring</i>	<i>Goal commitment</i>
Quality of performance metrics	0.281* (1.306)	-0.134 (0.320)	0.555*** (2.705)
Direct peer monitoring			0.210* (1.319)
Indirect peer monitoring			-0.097 (0.491)
Tenure in retail unit	0.194 (0.484)	-0.012 (0.063)	0.189 (0.865)
Manager age	-0.180 (0.620)	-0.250 (1.084)	0.147 (1.093)
Manager education	-0.177 (0.824)	-0.038 (0.291)	0.038 (0.288)
Size (employees)	-0.215 (0.942)	-0.150 (0.579)	-0.212 (0.765)
Customer satisfaction	0.219 (0.876)	-0.227 (1.200)	0.210 (1.319)
R ²	0.207	0.142	0.597
Max. VIF	1.692	1.692	1.797

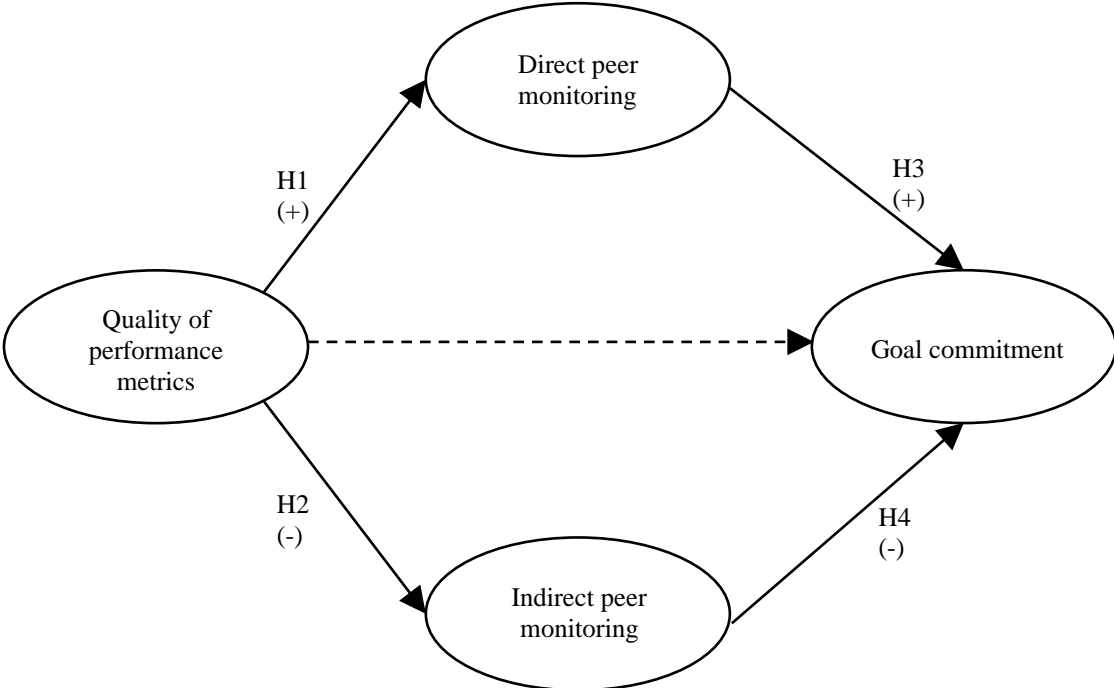
Each cell reports the path coefficient (t-value). *** Significant level 1%, ** Significant level 5%, * Significant level 10% (one-tailed for hypothesized relationships, two-tailed otherwise).

Table 6. Panel B. Low performance subsample. PLS structural model results

<i>Independent variables</i>	<i>Dependent variables</i>		
	<i>Direct peer monitoring</i>	<i>Indirect peer monitoring</i>	<i>Goal commitment</i>
Quality of performance metrics	0.381** (1.892)	-0.415** (1.816)	0.158 (0.509)
Direct peer monitoring			0.249 (1.191)
Indirect peer monitoring			-0.473*** (2.760)
Tenure in retail unit	0.003 (0.204)	-0.012 (0.129)	-0.065 (0.700)
Manager age	-0.081 (0.435)	0.119 (0.885)	-0.131 (0.718)
Manager education	0.006 (0.022)	-0.038 (0.252)	-0.052 (0.367)
Size (employees)	-0.223 (1.406)	-0.150 (0.905)	0.350** (2.256)
Customer satisfaction	-0.131 (0.435)	-0.081 (1.005)	-0.119 (0.885)
R ²	0.238	0.206	0.544
Max. VIF	1.190	1.190	1.431

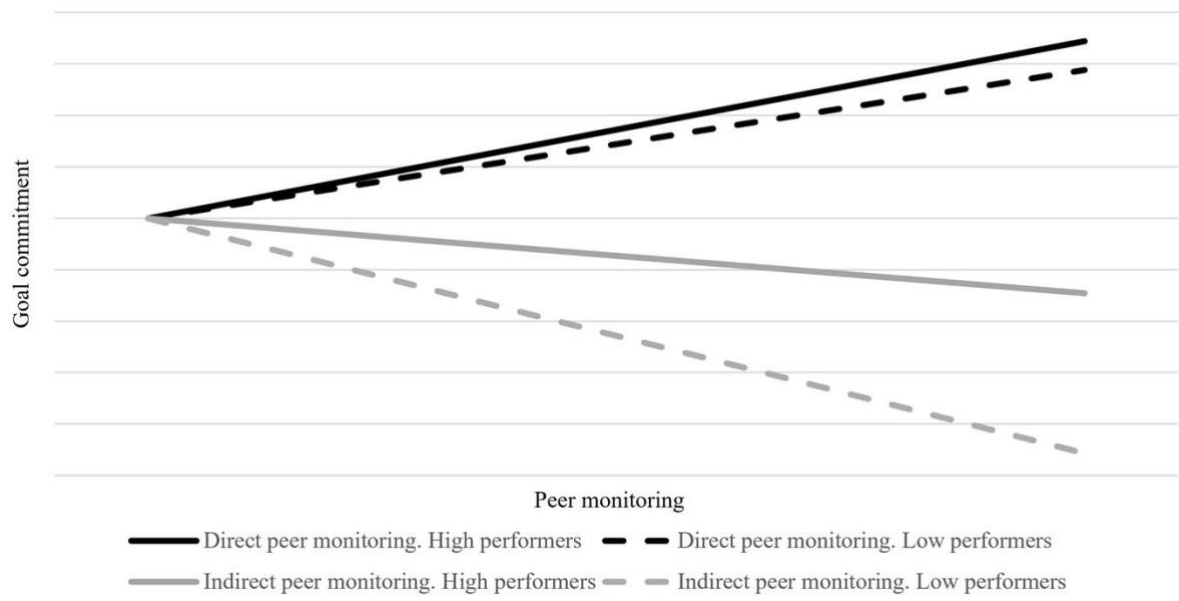
Each cell reports the path coefficient (t-value). *** Significant level 1%, ** Significant level 5%, * Significant level 10% (one-tailed for hypothesized relationships, two-tailed otherwise).

Figure 1. Theoretical model



Solid lines show hypothesized links, while the dashed line shows non-hypothesized link.

Figure 2. Simple slopes for high and low performers



Appendix. Abbreviated survey questions

Quality of performance metrics (QPM)

- QPM1. The extent the budgetary goals are clear to you
- QPM2. The extent budgetary goals foster cooperation among employees
- QPM3. The extent you (managers) know what their main budgetary goals are
- QPM4. The extent budgetary goals reflect your overall performance
- QPM5. The extent you think it is not possible to achieve the budgetary goals (Rev)
- QPM6. The extent the budgetary goals are under your control*

Direct peer monitoring (DPM)

- DPM1. Notice what peers in other units are doing in terms of management practices
- DPM2. Notice what peers are doing at work
- DPM3. Praise peers who did a good job
- DPM4. Openly discuss performance with peers

Indirect peer monitoring (IPM)

- IPM1. Gossip about how peers perform at work
- IPM2. Refuse to socialize with peers who perform poorly
- IPM3. Avoid peers who perform poorly
- IPM4. Gossip about the poor performance of other SBUs managers*

Goal commitment (GC)

- GC1. The achievement of budgetary goals is one of my daily priorities.
- GC2. Since it is not always possible to tell how tough meeting the budgetary goal will be until you have worked on it for a while, it is hard to take the budgetary goals seriously (Rev)
- GC3. Quite frankly, I don't think achieving the budgetary goals is so important (Rev)

*Items dropped in the initial results due to low loading and/or cross-loading (below 0.4).; (Rev): Reverse coded.