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Supply Chain Guardianship: Why Some Firms Intervene When Other Firms Commit Fraud

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ABSTRACT

In supply chains, firms often become aware of illegal actions committed by their partners, prompting the critical question: when and why do those who know become those who act? Drawing on industry examples of supply chain fraud, we introduce the concept of supply chain guardianship to study how firms respond to potential fraud committed by their supply chain partners. We identify key influences on supply chain guardianship and refine these insights into hypotheses, which we test across four behavioral experiments ($n = 1000$). Study A finds that the tone at the top of an organization can promote supply chain guardianship and that state moral disengagement is negatively correlated with it. Study B manipulates process moral disengagement and finds that it reduces guardianship behavior. Although the network position of the supply chain guardian emerges as important in industry examples, we do not find a significant effect in the experiments. We replicate and validate these findings in Studies C and D. This study offers an initial foundation for a behavioral theory of interfirm fraud responses in supply chains and offers practical insights into how firms can increase supply chain guardianship across macro-, meso-, and microlevels.

1 | Introduction

Supply chain fraud—"an unlawful act of deception through omission or commission perpetrated by one or more actors in a supply chain, leading to harm for other actors in the supply chain" (DuHadway et al. 2022, 125)—is a serious problem. High-profile examples routinely reach mainstream news, even when fraud results in unsafe or dangerous products. Product-safety concerns often involve multiple organizations where firms choose not to act in a timely fashion and fail to take responsibility for their supply chains. For example, Bloomberg reported that CVS continued to sell dangerous products for weeks after they were recalled due to hazardous manufacturing practices at a supplier (Edney and Robison 2024). CVS denied responsibility, stating in legal filings that "CVS specifically denies that it is the manufacturer or entity responsible for the design, manufacture, distribution, labeling, or packaging of any CVS Health Multi-Action Relief Drops" (Collins v. CVS Pharmacy Inc. and Velocity Pharma LLC 2024). If CVS is unwilling to take responsibility for keeping dangerous products on its store shelves produced by its suppliers and sold under its brand, then who else could be responsible?

This example highlights the importance of understanding why firms fail to protect their supply chains from fraudulent and dangerous products. It also raises the critical question: What compels a firm to act when *another* supply chain member engages in fraud? To answer this question, we introduce the concept of a supply chain guardian as *a firm that takes action toward another firm in the supply chain to stop supply chain fraud*. Unlike

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Highlights

- Supply chain guardianship, defined as taking actions to stop another firm from engaging in fraud, can help protect individuals, firms, and supply chains from the consequences of illegal actions.
- Individuals in firms with a tone at the top that emphasized ethical priorities such as safety were more likely to make decisions that protect against supply chain fraud.
- Process moral disengagement (distancing oneself from the moral costs of decisions by reconstruing morality and responsibility) can perpetuate illegal behavior in supply chains.

approaches that solely focus on internal controls, supply chain guardianship centers on external oversight. For example, when Patagonia discovered evidence of modern slavery within their supply chain, the firm took corrective actions in their supply chain, shared information about the problem, and formed an industry coalition to more broadly address the issue (Webb 2025).

Taking action to stop fraud when it originates beyond the firm is an important dimension for managing supply chain fraud, as issues often arise through supply chain partners (Villena and Gioia 2018). However, as seen in the CVS example, taking responsibility for protecting a supply chain from fraudulent behavior is neither trivial nor universal. Therefore, we ask the following research question: *What causes individual decision-makers to have their firm engage in supply chain guardianship, taking actions to stop fraudulent behavior at another firm?*

Addressing this question requires a multilevel perspective given that decisions for a firm to intervene come from individual decision-makers, unfold within organizational structures, and are influenced by firms' network positions. Prior research on wrongdoing in supply chains highlights the roles of network structures (DuHadway et al. 2022), organizational factors (Arnold et al. 2012), and individual behaviors (Pournader and Kach 2024; Peinkofer and Jin 2023). Accordingly, our investigation adopts a multilevel approach to supply chain guardianship by considering the influences of macro (network), meso (organizational), and micro (individual) factors.

Our research design follows a process consistent with "Path B" in the editorial by Bendoly and Oliva (2025) and methodological guidelines for phenomenon-driven research (Fisher et al. 2021; Dencker et al. 2023). First, we define supply chain fraud and analyze industry examples highlighting that supply chain fraud requires examining not only the actions of the firm found guilty of fraud but also the behavior of adjacent firms, such as suppliers or buyers, that could have influenced the trajectory of the fraud. From this, we conceptualize *potential supply chain guardians* as firms that were not guilty of the fraud but were connected to it and had the opportunity to act. Examination of the industry examples highlights network position, leadership tone, and moral disengagement as recurring influential factors on guardianship behavior, and we formalize these insights into testable hypotheses grounded in literature on supply chain fraud theory, tone at the top, and moral disengagement. These hypotheses are then tested utilizing four vignette-based experiments. Finally, we discuss our findings and their theoretical and practical implications.

This article makes three main contributions. First, we introduce and define the novel concept of supply chain guardianship. By foregrounding the role of managers in bystander firms such as buyers or suppliers of the fraudulent actor, we move beyond a focus on detecting and mitigating fraud within the focal firm and offer a new conceptual lens for understanding how firms respond to observed wrongdoing by others in supply chains. Second, we develop a multilevel theoretical framework that explains variation in guardianship behavior across the macro (network position), meso (tone at the top), and micro (moral disengagement) levels. These antecedents emerged from inductive insights in high-profile global fraud industry examples and were formalized using theory as vehicles for rationalizing these newly observed patterns. Third, we test the proposed relationships in four behavioral experiments to identify causal effects of the theorized antecedents on individuals' guardianship behavior. Overall, this work advances behavioral operations management research by offering a foundation for a behavioral theory of interfirm fraud responses in supply chains.

2 | Initial Exploration of Supply Chain Fraud and Supply Chain Guardianship

2.1 | Supply Chain Fraud and Supply Chain Guardianship

Supply chain fraud can be viewed as "a particularly extreme form of opportunistic behavior" and defined as "an unlawful act of deception through omission or commission perpetrated by one or more actors in a supply chain, leading to harm for other actors in the supply chain" (DuHadway et al. 2022, 125; see also 124–127, for a more detailed discussion on the similarities and differences between supply chain fraud and opportunism). Supply chain fraud is an increasing concern for industry (Waxer et al. 2022), governments (US Department of Justice 2025), and research (DuHadway et al. 2020; Pullman et al. 2023). Prominent examples include suppliers falsifying certifications on aluminum leading to two failed rocket launches by NASA (US Department of Justice 2019), consulting firms specialized in helping pharmaceutical distributors sell opioids to the black market (US Department of Justice 2024a), military aircraft parts manufacturers falsifying test results (US Department of Justice 2022), major automotive companies colluding to avoid competing on sustainability (European Commission 2021), and bribery and fraud in public procurement (US Department of Justice 2024b). Although governments might actively prosecute such cases, such investigations occur after the harm has already been caused, while supply chain decision-makers might be able to intervene much earlier.

Supply chain guardianship can prevent fraud by a firm taking actions that address it once it is discovered through the efforts of one party in the supply chain toward other parties. The concept draws inspiration from criminology, where the absence of a "capable guardian" has been shown to enable crime and increase

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risks such as counterfeits (Kennedy 2016). We extend this idea to interorganizational contexts by focusing on how firms can actively guard their supply chains against the illegal behavior of others. Supply chain guardianship differs from traditional fraud controls by focusing externally on protecting the broader network by intervening in the misconduct of supply chain partners rather than only preventing internal violations.

2.2 | Selection of Industry Examples

We employed a purposive sampling approach to investigate supply chain fraud. We initially selected fraud incidents using the following inclusion criteria: (1) the perpetrator engaged in unlawful deceptive behaviors, (2) the harm to other parties in the supply chain was substantial, and (3) sufficient publicly available evidence existed to enable rigorous analysis. For each of these examples, firms were found to be *criminally liable* and were found guilty of or admitted to illegal acts of deception.

During our analysis, we observed that in addition to the firm engaging in fraud through an act of deception, a second firm played a consequential role. These firms were either suppliers or buyers of the firm that committed the fraud and had opportunities to intervene in the fraudulent behavior but varied in whether and how they acted. We call these firms *potential supply chain guardians* based on the opportunity that they had to influence the trajectory of the fraud.

Given that we intentionally selected industry examples of supply chain fraud, these potential supply chain guardians were ultimately unsuccessful. An important point to note is that examples of supply chain guardianship, especially successful ones, are relatively rare in public discourse. This is likely due to selection bias: when fraud is prevented, it seldom attracts attention or results in public documentation. Firms that discover fraud from their partners have little incentive to publicly disclose the misconduct, though recent evidence shows that suppliers might push back against buyers when confronted with customers' wrongdoing (Prajogo et al. 2025).

To address this limitation, we included two additional industry examples to broaden the analysis by identifying firms that acted as successful supply chain guardians. In one example, a buyer took corrective action against suppliers after discovering modern slavery. In the other, a supplier resisted a buying firm's request to change product specifications due to significant safety concerns associated with that change and subsequently shared those concerns with other buying firms. These additional examples provide a richer and more balanced view of guardianship in practice, following a typical-and-diverse sampling logic (Seawright and Gerring 2008). We analyze six industry examples overall, including four that resulted in significant fraud and two in which fraud was successfully prevented. Table 1 presents an overview of the industry examples of supply chain fraud and the firms identified as potential supply chain guardians in each instance.

Table 2 presents the network positions observed in the industry examples, and the actions of the supply chain guardians that we observed after they became aware of an issue that could lead to fraud. The guardians varied in network position, with some downstream and others upstream of the fraud. We discuss these different network positions as supplier- and buyer-side fraud based on whether the act of fraud occurred at a supplier or buyer relative to the guardian.

TABLE 1 | Overview of industry examples of supply chain fraud.

Fraud firm(s)	Potential supply chain guardian	Summary of fraud (act of deception)
Milk suppliers	Sanlu (buyer)	Added melamine-laced powder to deceive protein tests for milk sold to Sanlu to make infant formula, leading to several deaths (official reports include over 50,000 hospitalizations and 6 official deaths).
Takata	Honda (buyer)	Falsified airbag test data showing deadly safety defects. Withheld accurate data from Honda, leading to dozens of deaths (at least 36 globally).
Raw material suppliers	*Patagonia (buyer)*	*Used forced migrant labor leading to debt bondage. Patagonia required remediation.*
General motors	Delphi (supplier)	Concealed a deadly safety defect from the government and misled consumers on car safety, leading to over a hundred deaths (after rejecting 90% of applicants, 124 deaths were approved for compensation).
Volkswagen	Bosch (supplier)	Lied about emissions compliance to cheat government oversight. Destroyed documents, misled investigators, and obstructed justice during the investigations into the illegal pollution (estimated to cause 59 premature deaths).
General motors	*Autoliv (supplier)*	*Asked Autoliv to match dangerous Takata airbag design. Autoliv refused and informed other firms of risks.*

Note: Successful instances of supply chain guardianship are included in italics.

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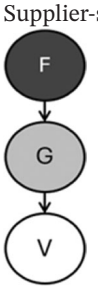
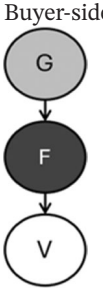
TABLE 2 | Actions taken by potential supply chain guardians after fraud discovery.

Network structure[a]	Fraud firm (F)	Potential supply chain guardian (G)	Supply chain guardianship failures	Supply chain guardianship behaviors
Supplier-side fraud 	Milk suppliers	Sanlu	Continued to ship product even after tests showed adulteration.	None
	Takata	Honda	Continued using risky airbags and did not warn customers.	None
	Raw material suppliers	Patagonia	None	Took corrective actions to change supplier behavior, disclosed the issue, and formed an industry coalition to address debt bondage.
Buyer-side fraud 	General motors	Delphi	Made substandard parts despite concerns.	Pushed GM for additional testing but were unsuccessful. Fully cooperated during investigations.
	Volkswagen	Bosch	Coded emissions cheat software, and covered up its purpose.	Warned VW of potential to use as cheat device and asked VW to take responsibility for use.
	General motors	Autoliv	None	Refused to use dangerous compound, and warned GM and other automakers of risks.

[a]F represents the firm guilty of fraud, G represents the potential supply chain guardian, and V represents the victims of the fraud (further downstream customers).

2.3 | Key Findings From Industry Examples

Following methodological guidelines for phenomenon-driven research (Eisenhardt and Graebner 2007; Fisher et al. 2021), we uncover three patterns from the industry examples and discuss their theoretical and practical insights across macro-, meso-, and microlevels. We present a short summary of the findings for each level in Figures 1–3, with additional detailed information on the industry examples available in the Supporting Information.

2.4 | Macro: Network Position Influenced the Efficacy of Potential Supply Chain Guardians

The evidence suggests that potential guardians were more successful in stopping supplier-side fraud. Firms that discovered supplier-side fraud occupied a pivotal position between the fraud firm and other downstream victims, and they seemed to have more effective leverage to influence the behavior of their supply chain partner compared to buyer-side fraud. For example, Patagonia was able to take a relatively straightforward approach to address supplier-side fraud after identifying problematic behavior by requiring the suppliers to change and publicly disclosing the problem to increase awareness. In contrast, when Autoliv was asked to switch to a dangerous chemical compound by a buyer, it was significantly more difficult. Rejecting a customer request—even one that could lead to serious harm—was not easy or straightforward, as summarized by one employee: "General Motors told us they were going to buy Takata's inflaters unless we could make a cheaper one" which "set off a big panic on how to compete" (Tabuchi 2016). Autoliv ultimately did not make the airbags with the dangerous chemical ammonium nitrate and informed their customers of the risks.

In failed guardianship examples, the suppliers Delphi and Bosch attempted but failed to change their buyers' behaviors. Meanwhile, the buyers Sanlu and Honda showed little evidence of any meaningful intervention toward their suppliers, despite being well positioned to do so. However, after the fraud became public and during investigations, Sanlu and Honda were assigned considerably greater responsibility for their failure to prevent the fraudulent product from being sold compared to Delphi and Bosch. This is, particularly, striking given that Sanlu and Honda were initially victims and were deceived by their suppliers, while Delphi and Bosch were never victims of deception as they made the products to their buyers' specifications and were aware of and disclosed the risks to their buyers.

Pattern 1: *Potential supply chain guardians were more effective at (a) preventing fraudulent behavior and (b) stopping fraud from having further impacts when it was supplier-side fraud.*

2.5 | Meso: Top Management at Firms Involved in Fraud Emphasized Rigid, Performance-First Priorities

The top management at firms involved with fraud strongly emphasized rigid, performance-first priorities. For GM and Takata, extreme cost pressures dominated organizational decision-making (Valukas 2014). At Volkswagen, management

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Pattern 1: *Potential supply chain guardians were more effective at (a) preventing fraudulent behavior and (b) stopping fraud from having further impacts when it was supplier-side fraud.*

Observations of Potential Supply Chain Guardians	Sanlu	Honda	Patagonia	Delphi	Bosch	Autoliv
Supplier-side fraud	☑	☑	☑	☐	☐	☐
Buyer-side fraud	☐	☐	☐	☑	☑	☑
Guardianship behavior changed other firm's behavior	☐	☐	☑	☐	☐	☑
Was found liable for failure to stop the fraudulent act	☑	☑	☐	☐	☐	☐
Considered generally responsible for failure to stop the fraud	☑	☑	☐	☐	☐	☐

Theoretical Insight: *Network structure plays a critical role in both supply chain fraud and supply chain guardianship. It influences the feasibility of addressing fraud and the likelihood of successful intervention.*

Practical Insight: *Firms that made efforts to act as supply chain guardians, even if unsuccessful, faced significantly smaller penalties than those that failed to act.*

FIGURE 1 | Observations of macrolevel factors in industry examples.

Pattern 2: *Upper management at firms involved in fraud strongly emphasized rigid, performance-first priorities that led to the fraud, and rejected supply chain guardianship efforts when they did not align with those priorities.*

Observations of Firms Involved in Fraud	Milk Suppliers	Takata	Raw Materials Suppliers	GM	VW	GM
High pressures from upper management	*no data*	☑	*no data*	☑	☑	☑
Culture of silencing dissent	*no data*	☑	*no data*	☑	☑	☑

Theoretical Insight: *Upper management priorities set the tone for an organization, shaping decisions around fraud and undermining supply chain guardianship if it conflicts with those priorities.*

Practical Insight: *Priorities that create high pressure to achieve certain goals can drive fraud and inhibit supply chain guardianship when in conflict with those goals.*

FIGURE 2 | Observations of mesolevel factors in fraud firms.

Pattern 3: *Deflecting the responsibility for unethical behavior to others was a recurring theme for firms involved in fraud and supply chain guardians that failed to address the issue.*

Observations of Firms Involved in Fraud	Milk Suppliers	Takata	Raw Materials Suppliers	GM	VW	GM
Passed the responsibility to others	*no data*	☑	*no data*	☑	☑	☑

Observations of Supply Chain Guardians	Sanlu	Honda	Patagonia	Delphi	Bosch	Autoliv
Passed the responsibility to others	☑	☑	☐	☑	☑	☐

Theoretical Insight: *Taking responsibility for ethical behavior is related to supply chain guardianship decisions.*

Practical Insight: *The difference between fraud and succesful guardianship often came down to a simple decision early on to take responsibility for their supply chains.*

FIGURE 3 | Observations of microlevel factors in industry examples.

demanded success at any cost, as a refusal or failure to deliver was unacceptable (Ewing and Bowley 2015). Beyond shaping internal decision-making, the tone from upper management also obstructed supply chain guardianship as any decisions that contradicted these priorities were dismissed, and employees feared speaking out. Other firms in the supply chain were unable to influence a company's actions when doing so required challenging the priorities set by upper management.

Organizational cultures varied among the potential guardians. At Bosch, Delphi, and Honda, there was no clear culture reinforced by the executive team; instead, culture appeared to be

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primarily shaped by the engineering teams. In contrast, Sanlu, Patagonia, and Autoliv demonstrated strong organizational cultures rooted in executive priorities. Sanlu showed signs of the same suppressive culture as the fraud perpetrators, prioritizing saving face and growth at any cost. Patagonia promoted a mission-driven, ethical culture centered on transparency, while Autoliv maintained a strong safety-first culture driven by leadership commitment. These contrasts underscore how organizational tone can either support or constrain guardianship behavior.

Pattern 2: *Upper management at firms involved in fraud strongly emphasized rigid, performance-first priorities that led to the fraud and rejected supply chain guardianship efforts when they did not align with those priorities.*

2.6 | Micro: Firms Involved in Fraud Deflected Responsibility for Unethical Behavior

The first reaction following the discovery of fraud was often a key decision moment in terms of either taking responsibility or passing the responsibility onto others. For example, in 2008, Bosch emailed Volkswagen, asking them to take the responsibility for continuing to develop the devices used to defeat the emissions testing, stating: "The further development requested by your company will result … in an additional path for the potential to reset data to act as a 'defeat device.' We ask you to have the attached disclaimers executed by your company" (Lawrence et al. 2017). Similarly, investigations uncovered a 2007 "Warranty Settlement Agreement" in which GM agreed not to sue Delphi for outstanding issues, explicitly listing "ignition switch failure" as one of the items (Valukas 2014, 128).

In addition to blame-shifting between organizations, we also observed similar behavior within organizations. As more individuals became aware of fraud, many chose to cover it up rather than take responsibility and address the issue. Notably, these actions played a key role in holding executives legally accountable for failing to act as guardians once they became aware of the fraud, despite not having initiated it.

Pattern 3: *Deflecting the responsibility for unethical behavior to others was a recurring theme for firms involved in fraud and supply chain guardians that failed to address the issue.*

3 | Multilevel Theoretical Support and Hypotheses

The previous section identified three patterns from the industry examples that ranged across the macro-, meso-, and microlevels. Given that neither the patterns that we observe in the industry examples nor the cause-and-effect relationships among the constructs identified are free from uncertainty, they require further exploration. In this section, we examine each pattern in more depth using theory at the macro-, meso-, and microlevels to develop hypotheses for testing. We thus use an integrated phenomenon-driven and theory-based approach (e.g., Fisher et al. 2021; Dencker et al. 2023; Bendoly and Oliva 2025) to introduce relevant theories and integrate them with our industry evidence to develop hypotheses.

3.1 | Macrolevel Factor: Supplier-Side or Buyer-Side Fraud

Understanding a supply chain involves extending beyond a dyadic perspective to consider triadic or tetradic structures (Choi and Wu 2009; Choi and Holmen 2023). Structural hole theory identifies the importance of this network structure, arguing that firms possess advantages and disadvantages based on their position within a network (Burt 1992). A basic triadic structure can be represented as A → B → C, whereby Firm A supplies products to Firm B, which in turn supplies products to Firm C. Accordingly, Firm B controls the flow of goods and information between Firms A and C and bridges the structural hole that exists between Firm A and Firm C. The concept of bridging explains how an absence of connection between two nodes (in this case, Firms A and C) leads to situations where "intermediary actors facilitate transactions between other actors lacking access to or trust in one another" (Marsden 1982, 202). Such situations offer informational and positional advantages to an actor that bridges the structural hole (Burt 1992; Li et al. 2023).

DuHadway et al. (2022) expand on structural hole theory to introduce structural fraud theory, examining how fraudulent firms exploit bridging positions to perpetrate supply chain fraud. When fraud is discovered, "firms seek to remove the bridge (i.e., close the hole) and reduce structural ignorance" (DuHadway et al. 2022, 144) in a process called bridge collapse. This process involves a sudden restructuring of the network to enhance information transparency and prevent fraud.

Combining this theoretical perspective with the concept of a supply chain guardian presented in this paper, a guardian that occupies the bridge position can collapse the bridge by connecting the network nodes and sharing information within the triad about the fraud. However, when a potential guardian does not occupy the bridge position, they might have limited capability to stop the fraud due to not being connected to the other key node in the network. The examples reveal two simplified network structures:

1. *Supplier-side fraud*: The fraudulent behavior occurred at a supplier firm, and the potential guardian bridged the structural hole (e.g., fraud → *guardian* → victim).

2. *Buyer-side fraud*: The fraudulent behavior occurred at a buyer firm, and the potential guardian did not occupy the bridge position (e.g., *guardian* → fraud → victim).

The potential supply chain guardians that bridged the structural hole (the buying firms Honda, Sanlu, and Patagonia) were in a position that allowed them to stop the fraud. However, among these, only Patagonia acted as a supply chain guardian, implementing corrective actions that addressed the behavior of the firm engaging in fraud and publicizing information about it. Potential supply chain guardians that did not bridge the structural hole (the suppliers Delphi, Bosch, and Autoliv) were less capable of stopping the fraud, even when they were motivated to do so. This finding is similar to research that finds that suppliers do push back when they see

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buyer wrongdoing (see Prajogo et al. 2025), although doing so might be less effective for buyer-side fraud. Integrating structural fraud theory with the evidence from industry examples, we hypothesize:

Hypothesis 1. *Supply chain guardianship will be stronger for supplier-side fraud compared to buyer-side fraud.*

3.2 | Mesolevel Factor: Tone at the Top of the Organization

Tone at the top has been defined as "top management's way of expressing (ethical) values pursued in the organization and providing guidance to employees" (Ewelt-Knauer et al. 2022, 610). The concept and its function as a critical mechanism for guiding behavior have been widely discussed in the corporate governance, fraud, and management literature (e.g., the seminal works by Schwartz et al. 2005; Treviño et al. 1998; Mayer et al. 2012). Extant research has found this mesolevel factor "to be an important precursor to, or reinforcement of, an ethical culture or ethical norms" (Warren et al. 2015, 561), and claims that ethical culture exerts a powerful influence on the behavior of the organization's members (Treviño et al. 1998; Hiekkataipale and Lämsä 2019; Roy et al. 2024). As tone at the top reflects the values, priorities, and commitments communicated by top management through both words and actions, it sets the standard for what is acceptable and expected by members. Consequently, it serves as a key component of an organization's informal control system, complementing formal governance structures by providing employees with cues on how to interpret and respond to ethical challenges (Falkenberg and Herremans 1995; Schaubroeck et al. 2012).

In practice, the significance of tone at the top in preventing corporate misconduct has long been identified as a key factor in fraud prevention and detection (National Commission on Fraudulent Financial Reporting 1987; Brief et al. 1996). This stance is reinforced by the Association of Certified Fraud Examiners (2012), which defines its role as shaping an organization's ethical atmosphere. The examples from industry indicate that the tone at the top was one of the key drivers of supply chain fraud, prominently featuring in the examples of GM, Takata, and Volkswagen, *where the top management emphasized the financial consequences of decisions over moral considerations*. One of the clearest examples is GM, where the company's emphasis on cost reductions created an environment that deprioritized safety. The GM Investigation Report (Valukas 2014) investigating the ignition switch issue included an entire section called the "Tone at the Top on Safety," which discussed the failure of GM to emphasize safety due to their strong emphasis on costs where addressing that failure was included as one of the first recommendations to "implement regular communications with employees about safety to raise awareness and reinforce the tone at the top" (Valukas 2014, 260). In contrast, both successful examples of supply chain guardians—Patagonia and Autoliv—clearly emphasized ethical decision-making.

Taken together, the academic literature and industry examples suggest that the tone at the top can play a significant role in employees' decisions regarding supply chain guardianship. Setting an ethical tone at the top implies that leaders encourage employees to (a) identify decisions with moral consequences and (b) consider more than simply the bottom-line results (Onesti and Palumbo 2023; Taylor-Neu et al. 2024). The tone at the top of an organization can stop the proliferation of fraud when it emphasizes safety or ethical decision-making. Conversely, a rigid leadership focus on cost-cutting and financial metrics can discourage ethical behavior and contribute to fraudulent practices. Juxtaposing earlier findings on the influence of tone at the top and our industry examples, we hypothesize:

Hypothesis 2. *Supply chain guardianship will be stronger when the tone at the top emphasizes an ethical decision environment.*

3.3 | Individual-Level Factors: State and Process Moral Disengagement

One prominent explanation for individuals' unethical behavior is moral disengagement, as a cognitive process that enables otherwise decent people to perpetuate inhumane practices (Bandura 1999). Moral disengagement can be conceptualized as either a *trait-level* propensity (e.g., Detert et al. 2008; Moore et al. 2012) or a *process* that can change over short periods (e.g., Welsh et al. 2015). Reviews highlight the challenges in studying moral disengagement due to its dual conceptualization and the multiple mechanisms through which it operates (Moore 2015; Newman et al. 2020; Schaefer and Bouwmeester 2021).

Addressing the complexities of extant work on moral disengagement, Schaefer and Bouwmeester (2021, 526) reconceptualize *process moral disengagement* as "intrapsychic cognitive reasoning processes through which people selectively reconstrue a moral judgment 'behavior B by actor A is morally wrong' and shift it toward becoming 'behavior B is not morally wrong' or 'actor A is not responsible for behavior B'". From this perspective, process moral disengagement comprises two key dimensions: (1) reconstruing morality, or re-evaluating *behavior* to reinterpret it as morally acceptable; and (2) reconstruing agency, or deflecting the *responsibility* of an actor from the unethical behavior. Schaefer and Bouwmeester (2021, 526) note that the two strategies "do not operate in empirically distinct ways but may often intermingle in process moral disengagement".

Although process moral disengagement is an intrapsychic process that cannot be directly observed, we find evidence reflecting reconstruing morality and reconstruing agency in the industry examples. Reconstruing morality was observed in the GM example when the investigation report identified how "issues remained mired in cost and 'business case' justifications—factors that would have played no role in resolving a safety issue" (Valukas 2014, 54). Internal emails at Takata also show evidence of reconstruing morality, as manipulating data was positively promoted and normalized in internal emails (Ivory and Tabuchi 2016). Reconstruing agency was also evident in several examples, as firms involved in fraud-related behavior deflected responsibility by either passing the responsibility

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for the behavior within their company or blaming other firms rather than taking responsibility for the behavior. For instance, the investigative report on GM describes it as: "a troubling disavowal of responsibility made possible by a proliferation of committees. It is an example of what witnesses called the 'GM salute,' a crossing of the arms and pointing outward towards others, indicating that the responsibility belongs to someone else. Here, because a committee was 'responsible,' no single person bore responsibility or was individually accountable" (Valukas 2014, 68–69).

Research has consistently found that moral disengagement is associated with higher degrees of unethical behavior (e.g., Moore et al. 2012; Kaufmann et al. 2018; Pournader and Kach 2024). The common approach in this literature is to measure *state* moral disengagement in experiments *after* assessing unethical behavior, rather than manipulating moral disengagement as a causal factor (Newman et al. 2020). To ground our research in extant literature while also testing the causal mechanism of *process* moral disengagement, we include two hypotheses, one reflecting the traditional use of moral disengagement as a *state* variable measured *after the fact*, and the other manipulating *process* moral disengagement as a *causal* factor. Given the consistency between theory and practical evidence, we expect state moral disengagement to be associated with lower levels of supply chain guardianship. Furthermore, we expect that process moral disengagement will reduce supply chain guardianship. Hence:

Hypothesis 3. *State moral disengagement will be negatively associated with supply chain guardianship.*

Hypothesis 4. *Process moral disengagement will decrease supply chain guardianship.*

4 | Experiments

The hypotheses were tested using four vignette-based experiments (Aguinis and Bradley 2014; Eckerd et al. 2021), which we refer to as Studies A, B, C, and D. The experimental designs were informed by our industry examples, aggregate data on fraud investigations, and theoretical insights. In matching the experimental context to the industry examples, we prioritized maximizing internal and external validity. We include a more detailed discussion of the dilemmatics considered in developing the experiments in the Supporting Information (McGrath 1981). Figure 4 provides an overview of our phenomenon-driven and theory-based approach.

4.1 | Summary of Experiments

We used a similar overall structure for the four studies by asking participants to assume the role of an employee at a firm where they discover an act of deception by another firm in their supply chain that is clearly illegal and could cause significant harm. They were then asked what actions they would recommend their firm take in response. In each study, participants were randomly assigned to different manipulations. All studies used the same dependent variables for supply chain guardianship. In Study A, we manipulated *network position* and *tone at the top*. In Study B, we manipulated *network position* and *process moral disengagement*. In Studies C and D, we introduced an expanded industry context to increase the external validity of the experiments and serve as robustness checks, involving *network position* in Study C and *process moral disengagement* in Study D (Figure 5). We summarize the key information for each experiment below, and provide full details on the experimental design, manipulations, and measures in the Supporting Information.

Analysis Level	Evidence from Industry Examples	Hypotheses	Experimental Design Factors
Macro: Network	**Pattern 1:** *Potential supply chain guardians were more effective at (a) preventing fraudulent behavior and (b) stopping fraud from having further impacts when it was supplier-side fraud.*	**Hypothesis 1:** *Supply chain guardianship will be stronger for supplier-side fraud compared to buyer-side fraud.*	• Network position (supplier-side/buyer-side fraud) manipulation based on triadic network structures observed in industry examples. • Guardianship decisions include actions towards other network firms.
Meso: Organization	**Pattern 2:** *Upper management at firms involved in fraud strongly emphasized organizational priorities that led to the fraud, and rejected supply chain guardianship efforts when it did not align with those priorities.*	**Hypothesis 2:** *Supply chain guardianship will be stronger when the tone at the top emphasizes an ethical decision environment.*	• Tone at the top (safety/cost) manipulation developed based on training materials from industry examples. • Emphasized cost and safety tradeoffs based on common industry themes. • Guardianship decisions are made in the organizational context.
Micro: Individual	**Pattern 3:** *Deflecting the responsibility for unethical behavior to others was a recurring theme for fraud firms and supply chain guardians that failed to address the issue.*	**Hypothesis 3:** *State moral disengagement will be negatively associated with supply chain guardianship.* **Hypothesis 4:** *Process moral disengagement will decrease supply chain guardianship.*	• Process moral disengagement (high/low) manipulation developed from theory and industry evidence. • Activated moral disengagement using "in the moment" context-specific instructions. • Use of individual-level traits as controls.

FIGURE 4 | Connection between industry examples, hypotheses, and experimental design.

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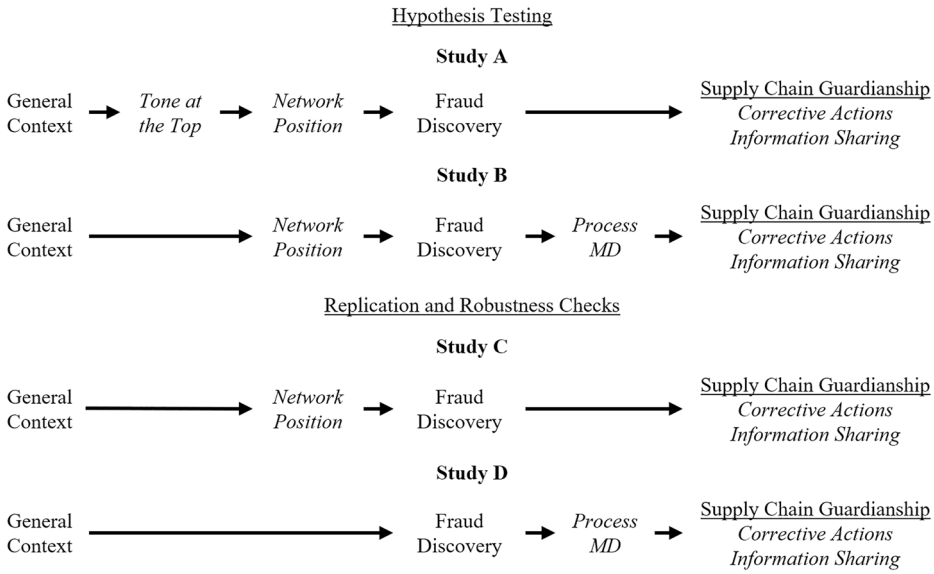

FIGURE 5 | Overview of flow in experiments.

4.2 | Sample

Data for all four studies were gathered from Prolific (www.prolific.com). While recent comparisons of online data collection platforms show that Prolific performs well in terms of overall data quality (Douglas et al. 2023; Albert and Smilek 2023; Peer et al. 2022), methodological guidelines in the operations management literature also emphasize that ensuring data quality more strongly depends on proper participant screening than on online data collection platform choice (Shang and Rönkkö 2022). In line with recent behavioral operations research (Ried et al. 2025; Lu et al. 2024), we therefore followed the recommendations of Shang and Rönkkö (2022) and carefully screened all participants. We prescreened for participants who (1) had management experience; (2) held decision-making responsibilities in at least one of the business strategy, customer/client, operations/production, or supply chain/logistics categories; (3) held roles in account management, operations, or product management functions within their organization; (4) were fluent in English; and (5) were current residents of the United States.

Participants were deemed ineligible if they had already participated in any other experiment used in this paper, meaning that all participants are unique respondents between Studies A, B, C, and D, and the pretests collected for Studies A and B. In addition, we incorporated several checks to validate the responses, including eliminating responses with missing data and those that failed attention checks and manipulation checks that included both objective and subjective measures. Participants were paid a fixed amount for both experiments based on Prolific's suggested hourly rate of $12 per hour and the estimated 15-min duration. We used a fixed-rate payment rather than performance-based incentives to match the practical context (Eckerd et al. 2021). Table 3 provides sample characteristics.

4.3 | Manipulations and Measured Variables

Network position was manipulated by randomly assigning participants to one of two different network structures, where the fraud was committed by either a supplier (supplier-side fraud) or a buyer (buyer-side fraud), matching the network structures observed in our industry examples. For Studies A and B, the network position of participants' firm and the fraud-committing firm were swapped between manipulations, matching the two network structures observed in the industry examples (Figure 6). For Study C, the participants' firm was fixed with a specific role with the same buyer and supplier relationships in all conditions. We then randomly assigned participants to supplier-side fraud (0) or buyer-side fraud (1) for Studies A, B, and C. For Study D, we assigned participants to supplier-side fraud.

Tone at the top was manipulated by randomly assigning participants to firms where top management emphasized either safety (1) or cost (0). This manipulation included a training developed by adapting the GM training materials revealed during the investigation, where safety issues were deprioritized to emphasize cost, which was identified as exemplary of the problematic culture at GM (Valukas 2014). To complete the training, participants had to correctly complete a sorting task matching the top management priorities and then read additional descriptive text describing top management directives.

Process moral disengagement was manipulated by randomly assigning participants to different levels of process moral disengagement. We activated moral disengagement using "in-the-moment" context-specific instructions based on the suggestions from Ogunfowora et al. (2022). We developed the specific manipulation based on industry evidence, moral disengagement research (Schaefer and Bouwmeester 2021), and previous work that manipulated moral disengagement in other contexts (Dang et al. 2017). Study B manipulated process moral disengagement to either high (1) or no moral disengagement (0), and Study D manipulated three levels for process moral disengagement as high (1), neutral (0), or low (−1) (Table 4).

Supply chain guardianship was the primary dependent variable in this study, measured by asking participants what actions they would recommend their firm take in a report to upper management at their firm. We measured supply

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TABLE 3 | Sample characteristics.

Sample information	Study A	Study B	Study C	Study D
Initial sample	253	285	294	282
Additional data collection	144[a]	—	—	—
Did not match prescreening questions	89	37	45	32
Eliminated due to missing data	34	3	0	0
Completed responses	274	245	249	250
Eliminated for failed attention check	7	2	1	8
Final sample	267	243	248	242
Demographics of final sample				
Compensation	$3	$3	$3	$3
Median completion time (min)	13.85	13.1	14.1	13.5
Median age (range)	40 (19–69)	44 (18–85)	39 (20–77)	40 (21–71)
Female/male/other	152/115	117/126	112/136/0	120/119/3
SCM knowledge (at least 2/3 correct)	97.4%	95.1%	93.1%	95.0%
Percentage with managerial experience	100%	100%	100%	100%
Country of birth (USA/global)	257/10	227/16	241/7	229/13

[a]For study A, we collected an additional round of data collection to address concerns about sample size raised during the review process. Results are presented on the total sample, after validating merging the two samples as discussed in the Supporting Information.

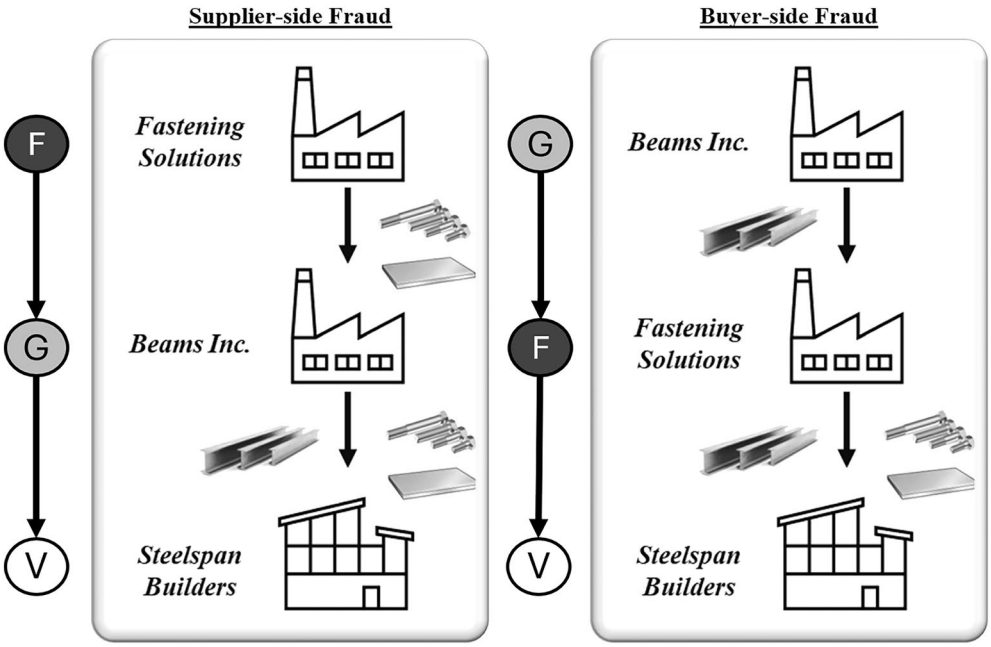

FIGURE 6 | Network figures shown to participants in Studies A and B. Participants were assigned to the firm Beams Inc. and discovered their supplier/customer Fastening Solutions had fabricated certificates. The roles of each firm are labeled for reference. F represents the firm committing fraud, G represents the potential supply chain guardian, and V represents a victim of the fraud. Headings and labels were not shown to participants.

chain guardianship using two items: (1) corrective actions to take toward the fraudulent party and (2) information sharing with potential victims. These items were adapted to the context of this experiment from recent experiments investigating individual responses to discovering modern slavery (Pournader and Kach 2024) and based on structural fraud theory (DuHadway et al. 2022). We used a seven-point scale, anchored with examples developed to represent minor, moderate, and major levels for both questions.

Supply chain guardianship propensity was included as a control variable to measure respondents' baseline propensity to take actions to stop illegal behavior within their supply chain and to control for potentially omitted variables related to the

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TABLE 4 | Mechanisms of process moral disengagement mapped to the experiment in Study B.

Mechanisms		Language in experiment
Behavior B is not morally wrong	➡	**Morally, there are no "right" or "wrong" choices for this decision.**
1. Moral justification		1. None of the choices are unethical, since your company didn't do anything illegal.
2. Misconstruing consequences		2. The consequences are minor, because the projects have specific design requirements even if the materials were not certified.
3. Moral exclusion of victim		3. Most of the projects are for warehouses, with practically no people working there.
Actor A is not responsible	➡	**You are not personally responsible for the choice you make.**
1. Displacement of responsibility.		1. You are writing a report for what actions Beams Inc., should take, not what you personally would choose.
2. Blaming the victim		2. Steelspan Builders is to blame for the situation due to their constant cost pressures.
3. Diffusion of responsibility		3. Other people will be part of the choice, so your recommendation is just one among many.

Note: The ethical choice being considered was what to recommend in the report after discovering the falsified certifications. "Behavior B" included the dependent variables for supply chain guardianship and "Actor A" was the participant. The language in the experiment was intentionally orthogonal to specific recommendations to avoid priming participants toward a specific choice.

dependent variables. The two measures used for supply chain guardianship in this study capture specific *actions*, whereas the supply chain guardianship propensity variable is a more general, reflective measure of respondents' *general inclination* to intervene.

State moral disengagement was measured in Study A using the prevalent approach of measuring the variable *after* the decision variables in the experiment (Moore et al. 2012; Kaufmann et al. 2018; Pournader and Kach 2024). This method involves collecting the variable after the primary dependent variables and adapting specific mechanisms to the experimental context.

Control variables included demographic information provided by the participants to Prolific, detailing their age and gender. Additionally, we included control variables in our experiments to measure Machiavellianism (Jones and Paulhus 2014), social desirability bias (Crowne and Marlowe 1960; Ried et al. 2022; Ta et al. 2025), and supply chain management expertise. All measures are provided in the Supporting Information, and Tables 5 and 6 include correlations for all variables.

4.4 | Manipulation Checks and Further Robustness Checks

For network position, participants were randomly assigned to different network positions based on whether they were facing supplier-side or buyer-side fraud. In Studies A and B, we asked participants to specify the relationship between their firm and the firm that committed fraud in the experiment, measuring whether they reported it as a supplier (1) or customer (2). We observed statistically different responses in the expected direction when comparing groups using *t*-tests of unequal variance ($t = -14.85$, $p < 0.01$ in Study A and $t = -11.17$, $p < 0.01$ in Study B). For Study C, we measured two subjective responses on a seven-point scale to verify the efficacy of the manipulation ($t = -13.09$, $p < 0.01$). All manipulation checks *confirmed the effectiveness of the manipulation*.

For the tone at the top in Study A, participants were randomly assigned to firms where top management emphasized either safety or cost. As a manipulation check, we asked the respondents to state how strongly they agreed with the statement "my company had a culture that valued safety over cost" using a seven-point scale. We observed statistically different responses in the expected direction when comparing groups using *t*-tests of unequal variance ($t = -10.29$, $p < 0.01$), *confirming the effectiveness of the manipulation*.

For process moral disengagement in Studies B and D—which involved multiple mechanisms that "do not operate in empirically distinct ways but may often intermingle in process moral disengagement" (Schaefer and Bouwmeester 2021, 526)—we included a manipulation check including eight different measures asking participants to state how strongly they considered certain issues related to the mechanisms used to manipulate process moral disengagement. Each question was assessed on a seven-point scale, anchored with "did not consider at all" and "considered extensively." In both studies, we observe a statistically significant difference using *t*-tests of unequal variance ($t = -2.31$, $p = 0.02$ in Study B) and ($t = -2.85$, $p < 0.01$ in Study D). In addition, we test whether the manipulation on process moral disengagement influenced state moral disengagement in the intended direction to verify the efficacy of the manipulation. In both studies, the manipulation of process moral disengagement had a significant effect on the manipulation checks and state moral disengagement ($t = -2.68$, $p = 0.01$ in Study B and $t = 2.32$, $p = 0.02$ in Study D).

Table 7 summarizes the manipulation check results for all studies. The Supporting Information presents additional robustness

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TABLE 5 | Correlations in Studies A and B.

												Study B		
Measures	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Mean**	**SD**	***N***
1. SCG: corrective actions	—	**0.452**	0.046	**−0.348**	**−0.295**	**0.437**	−0.088	−0.104	−0.026	**0.140**	0.044	5.630	1.151	243
2. SCG: information sharing	**0.568**	—	−0.022	**−0.277**	**−0.135**	**0.324**	−0.083	−0.038	−0.065	0.066	−0.031	5.572	1.387	243
3. Buyer-side fraud	0.004	−0.105	—	−0.004	0.055	−0.014	−0.001	0.084	−0.046	0.000	−0.020	0.494	0.501	243
4. Tone at the top|process MD	**0.204**	**0.222**	−0.018	—	**0.156**	**−0.255**	0.044	0.050	−0.029	0.038	−0.115	0.494	0.501	243
5. State MD	**−0.455**	**−0.409**	0.021	−0.082	—	**−0.395**	**0.250**	**0.526**	−0.027	**−0.160**	**−0.369**	2.640	1.203	243
6. SCG propensity	**0.520**	**0.525**	0.007	**0.157**	**−0.487**	—	−0.012	**−0.142**	−0.040	**0.195**	0.089	5.844	0.960	243
7. Social desirability bias	**−0.125**	**−0.238**	−0.013	0.037	**0.281**	**−0.179**	—	**0.453**	**−0.193**	−0.114	**−0.200**	3.389	1.474	243
8. Machiavellianism	**−0.150**	**−0.155**	−0.050	0.036	**0.471**	**−0.187**	**0.565**	—	**−0.149**	**−0.184**	**−0.283**	3.789	1.208	243
9. Gender (0 = *male*, 1 = *female*)	0.007	−0.081	0.100	0.004	0.036	0.025	0.054	−0.005	—	0.052	−0.020	0.481	0.501	243
10. Age	0.045	0.063	−0.073	0.034	**−0.139**	0.040	**−0.149**	**−0.159**	−0.024	—	0.077	44.045	12.264	243
11. SCM expertise	−0.016	−0.015	0.042	−0.023	−0.113	0.050	0.028	0.058	0.011	−0.001	—	2.671	0.609	243
Mean (Study A)	5.642	5.511	0.496	0.489	2.673	5.803	19.427	3.832	0.489	44.014	2.663			
Standard deviation (Study A)	1.130	1.422	0.501	0.501	1.220	0.983	1.497	1.220	0.501	12.127	0.611			
N (Study A)	267	267	267	267	267	267	267	267	267	267	267			

Note: The lower diagonal includes the correlations from Study A. The upper diagonal includes the correlations from Study B. Item 4 is Tone at the Top for the lower diagonal and process moral disengagement for the upper diagonal. Bolded values = $p < 0.05$.

Abbreviations: MD, moral disengagement; SCG, supply chain guardianship; SCM, supply chain management.

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TABLE 6 | Correlations in Studies C and D.

											Study D		
Measures	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Mean**	**SD**	***N***
1. SCG: Corrective actions	—	**0.473**	**−0.274**	**−0.363**	**0.377**	−0.086	**−0.170**	0.104	0.022	0.058	5.930	1.089	242
2. SCG: Information sharing	**0.607**	—	**−0.250**	**−0.374**	**0.373**	**−0.181**	**−0.248**	0.085	**0.133**	0.018	5.430	1.468	242
3. Buyer-side fraud|process MD	−0.006	0.025	—	**0.148**	**−0.209**	0.094	**0.179**	0.086	−0.084	0.033	−0.012	0.822	242
4. State MD	**−0.355**	**−0.287**	−0.048	—	**−0.397**	**0.243**	**0.388**	−0.119	**−0.183**	**−0.156**	2.278	1.033	242
5. SCG propensity	**0.440**	**0.482**	0.002	**−0.447**	—	**−0.240**	**−0.313**	−0.016	**0.217**	0.071	5.903	0.953	242
6. Social desirability bias	**−0.161**	**−0.194**	−0.046	**0.224**	**−0.248**	—	**0.548**	−0.055	−0.117	0.055	3.395	1.429	242
7. Machiavellianism	**−0.211**	**−0.181**	−0.017	**0.347**	**−0.210**	**0.485**	—	**−0.152**	**−0.179**	−0.071	3.565	1.091	242
8. Gender (0 = *male*, 1 = *other*)	−0.014	−0.028	0.022	−0.099	0.037	−0.053	**−0.166**	—	0.000	0.124	0.508	0.501	242
9. Age	0.095	0.013	0.053	**−0.263**	0.078	**−0.137**	**−0.245**	−0.059	—	0.032	41.760	11.847	242
10. SCM expertise	0.046	0.023	0.095	**−0.151**	0.087	0.066	0.081	−0.057	−0.003	—	2.665	0.611	242
Mean (Study C)	5.875	5.504	0.488	2.519	5.958	3.649	3.868	0.452	41.770	2.665			
Standard deviation (Study C)	1.189	1.607	0.501	1.312	0.976	1.576	1.208	0.499	11.432	0.640			
N (Study C)	248	248	248	248	248	248	248	248	248	248			

Note: The lower diagonal includes the correlations from Study C. The upper diagonal includes the correlations from Study D. Item 4 is buyer-side fraud for the lower diagonal and process moral disengagement for the upper diagonal. Bolded values = $p < 0.05$. For Study D, three respondents did not disclose gender, so gender is treated as a categorical variable in the regressions and simplified to a dichotomous variable to report correlations.
Abbreviations: MD, moral disengagement; SCG, supply chain guardianship; SCM, supply chain management.

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TABLE 7 | Manipulation check results for all studies.

Manipulation by study	Values by group			*t*-test equal variance	*t*-test unequal variance
Network position (Study A)	Supplier-side		Buyer-side		
Sample size	136		131		
Mean	1.04		1.69	−15.06 ($p=0.00$)	−14.85 ($p=0.00$)
Tone at the top (study a)	Cost		Safety		
Sample size	126		141		
Mean	3.81		6.16	−10.57 ($p=0.00$)	−10.29 ($p=0.00$)
Network position (Study B)	Supplier-side		Buyer-side		
Sample size	123		120		
Mean	1.04		1.58	−11.27 ($p=0.00$)	−11.17 ($p=0.00$)
Process moral disengagement (Study B)	Low		High		
Sample size	123		120		
Composite mean (8 manipulation checks)	3.85		4.20	−2.31 ($p=0.02$)	−2.31 ($p=0.02$)
Composite mean (state moral disengagement)	2.46		2.83	−2.45 ($p=0.02$)	−2.45 ($p=0.02$)
Network position (Study C)	Supplier-side		Buyer-side		
Sample size	127		121		
Composite mean (2 measures)	1.84		4.83	−13.30 ($p=0.00$)	−13.09 ($p=0.00$)
Process moral disengagement (Study D)[a]	Low	*N*	High		
Sample size	83	79	80		
Composite mean (8 measures)	2.65	2.65	3.03	2.95 ($p=0.00$)	2.85 ($p=0.01$)
Composite mean (state moral disengagement)	2.07	2.34	2.44	2.32 ($p=0.02$)	2.32 ($p=0.02$)

[a]For study D, the variable was manipulated to three levels of low, neutral, and high. We report the t values from a regression on the manipulation checks treating the IV as continuous with and without robust standard errors.

checks, including measure validation, measures for the manipulation checks, and discussions of internal and external validity. covariates, significant and insignificant controls are available in the Supporting Information for each study.

4.5 | Results From Studies A–D

For each study, we estimate two dependent variables (corrective actions and information sharing). Given the related conceptual and theoretical nature of these outcomes, a simultaneous estimation method is appropriate based on the likelihood that the resultant error terms on the statistical estimations across each of the (separately estimated) equations will be related, which can lead to less efficient estimation. To account for this, we estimate our models simultaneously using seemingly unrelated regression, which captures a joint error term and exhibits increased efficiency in estimation (Zellner and Huang 1962). We present the estimates of the models for Studies A to D, first with the main effects in Table 8 and then with all additional control variables in Table 9. Additional models with the manipulations,

4.6 | Model Fit

An examination of the fit statistics and explanatory power across the four models for the main effects suggests that the model estimation approach is correct. For Study A, the R^2 values are 0.235 for the *corrective actions* dependent variable and 0.212 for the *information sharing* dependent variable. For Study B, the R^2 values are 0.123 for the *corrective actions* dependent variable and 0.078 for the *information sharing* dependent variable. For Study C, the R^2 values are 0.127 for the *corrective actions* dependent variable and 0.082 for the *information sharing* dependent variable. Finally, for Study D, the R^2 values are 0.075 for the *corrective actions* dependent variable and 0.063 for the *information sharing* dependent variable. In addition, the χ^2 values across all models are statistically significant ($p<0.01$), and

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TABLE 8 | Model estimation results for supply chain guardianship for main effects.

	Study A		Study B		Study C		Study D	
Dependent variable	**Corrective actions**	**Information sharing**	**Corrective actions**	**Information sharing**	**Corrective actions**	**Information sharing**	**Corrective actions**	**Information sharing**
Main effects								
Buyer-side fraud	0.034 (0.11)	−0.269 (0.16)†	0.103 (0.14)	−0.063 (0.17)	−0.055 (0.14)	0.037 (0.20)	—	—
Tone at the top (safety)	0.351 (0.11)**	0.541 (0.16)**	—	—	—	—	—	—
State MD (covariate)	−0.395 (0.05)**	−0.482 (0.07)**	—	—	−0.323 (0.05)**	−0.350 (0.07)**	—	—
Process MD	—	—	−0.799 (0.14)**	−0.768 (0.17)**	—	—	−0.363 (0.08)**	−0.446 (0.11)**
Intercept	6.816 (0.16)**	6.797 (0.22)**	5.973 (0.12)**	5.983 (0.15)**	6.715 (0.17)**	6.368 (0.24)**	5.925 (0.07)**	5.424 (0.09)**
Model specifications and fit								
n	267	267	243	243	248	248	242	242
R^2	0.235	0.212	0.123	0.078	0.127	0.082	0.075	0.063
χ^2	82.220**	71.810**	34.090**	20.400**	35.950**	22.220**	19.700**	16.130**
χ^2—Breusch–Pagan[a]	54.818**		38.094**		79.166**		45.703**	

[a]Breusch–Pagan test of Independence between residuals. Reported coefficients are non-standardized. Standard errors are reported in parentheses.
†$p < 0.1$.
*$p < 0.05$.
**$p < 0.01$.

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TABLE 9 | Model estimation results for supply chain guardianship with all controls.

	Study A		Study B		Study C		Study D	
Dependent variable	**Corrective actions**	**Information sharing**	**Corrective actions**	**Information sharing**	**Corrective actions**	**Information sharing**	**Corrective actions**	**Information sharing**
Main effects								
Buyer-side fraud	0.031 (0.10)	−0.257 (0.14)†	0.117 (0.13)	−0.075 (0.16)	−0.034 (0.13)	0.079 (0.18)	—	—
Tone at the top (safety)	0.247 (0.10)*	0.411 (0.14)**	—	—	—	—	—	—
State MD (covariate)	−0.273 (0.06)**	−0.257 (0.08)**	−0.157 (0.07)*	−0.027 (0.09)	−0.162 (0.06)**	−0.114 (0.08)	−0.260 (0.07)**	−0.329 (0.09)**
Process MD	—	—	−0.590 (0.13)**	−0.606 (0.17)**	—	—	−0.268 (0.08)**	−0.282 (0.10)**
Controls								
SCG propensity	0.438 (0.07)**	0.650 (0.09)**	0.355 (0.07)**	0.366 (0.07)**	0.381 (0.10)**	0.701 (0.10)**	0.315 (0.07)**	0.356 (0.10)**
Social desirability bias	−0.012 (0.04)	−0.155 (0.05)**	−0.041 (0.05)	−0.054 (0.05)	−0.110 (0.06)†	−0.048 (0.07)	0.032 (0.05)	−0.027 (0.07)
Machiavellianism	0.058 (0.05)	0.118 (0.07)	0.049 (0.06)	0.049 (0.07)	0.047 (0.09)	−0.085 (0.09)	0.025 (0.07)	−0.040 (0.10)
Gender (male used as baseline)								
Female	0.019 (0.10)	−0.186 (0.14)	−0.037 (0.12)	−0.080 (0.13)	−0.229 (0.17)	−0.232 (0.18)	0.217 (0.13)†	0.201 (0.17)
Gender not disclosed	—	—	—	—	—	—	0.498 (0.55)	0.879 (0.75)
Age	−0.001 (0.00)	0.000 (0.01)	0.006 (0.00)	0.007 (0.01)	0.003 (0.01)	−0.010 (0.01)	−0.008 (0.01)	0.003 (0.01)
Supply chain expertise	−0.143 (0.10)	−0.145 (0.14)	−0.148 (0.11)	−0.236 (0.15)	−0.012 (0.11)	−0.066 (0.14)	−0.006 (0.10)	−0.095 (0.14)
Intercept	4.143 (0.63)**	2.941 (0.85)**	4.270 (0.71)**	4.560 (0.92)**	4.228 (0.75)**	2.788 (1.01)**	4.712 (0.66)**	4.340 (0.90)**
Model specifications and fit								
n	267	267	243	243	248	248	242	242
R^2	0.346	0.364	0.282	0.168	0.234	0.253	0.251	0.237
χ^2	141.260**	153.070**	95.430**	49.200**	75.790**	84.180**	81.230**	75.280**
χ^2—Breusch–Pagan[a]	34.849**		24.866**		60.419**		24.879**	

[a]Breusch–Pagan test of independence between residuals. Reported coefficients are nonstandardized. Standard errors are reported in parentheses.
†$p < 0.1$.
*$p < 0.05$.
**$p < 0.01$.

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the Breusch–Pagan test of the residuals shows a statistically significant χ^2 value for all model estimations, supporting a joint estimation approach for Studies A to D. Collectively, these fit statistics suggest an adequate match between the modeling approach and data collection.

4.7 | Results for Hypotheses 1–4

Below, our findings are interpreted utilizing the simultaneous estimations for Studies A through D, with Table 8 reporting the main effects. For robustness and to ensure methodological rigor, for each experiment on both dependent variables we estimated three additional models: one with only the manipulations, one with the manipulations and additional non-hypothesized covariates (supply chain guardianship propensity, social desirability bias, and Machiavellianism), and one additional model with the manipulated variable, the covariates, and all controls (age, supply chain expertise, and gender). The additional models are presented in the Supporting Information. Thus, four models for each of the four experiments were estimated, resulting in a total of 16 estimated models. A summary of the findings is presented below based on the main effects results reported in Table 8.

Hypothesis 1 (network position) was tested in Studies A and B, and then further validated in Study C. Across the six relationships tested in Studies A–C, there was one marginally significant coefficient between buyer-side fraud and supply chain guardianship for information sharing in Study A ($B = -0.269$, $p < 0.10$); otherwise, there were no significant relationships observed between buyer-side fraud and supply chain guardianship. Accordingly, we find *no support for Hypothesis 1*.

Hypothesis 2 (tone at the top) was tested in Study A. The results supported the hypothesis and found that an ethical tone from top management increased supply chain guardianship behavior for corrective actions ($B = 0.351$, $p < 0.01$) and information sharing ($B = 0.541$, $p < 0.01$). Accordingly, we find *support for Hypothesis 2*.

Hypothesis 3 (state moral disengagement) was tested in Study A and further validated in Study C. The results show that state moral disengagement was associated with lower supply chain guardianship for corrective actions and information sharing in Studies A ($B = -0.395$, $p < 0.01$ and $B = -0.482$, $p < 0.01$) and C ($B = -0.323$, $p < 0.01$ and $B = -0.350$, $p < 0.01$). Accordingly, we find *support for Hypothesis 3*.

Although state moral disengagement was positively correlated with supply chain guardianship in Studies B and D, we do not interpret Studies B and D for *Hypothesis 3* because those studies included a manipulation on process moral disengagement which is conceptually related to and likely to influence state moral disengagement.

Hypothesis 4 (process moral disengagement) was tested in Study B and further validated in Study D. We found statistical support that higher levels of process moral disengagement led to lower levels of supply chain guardianship for corrective actions and information sharing in Study B ($B = -0.799$, $p < 0.01$ and $B = -0.768$, $p < 0.01$) and Study D ($B = -0.363$, $p < 0.01$ and $B = -0.350$, $p < 0.01$), thereby *supporting this hypothesis*. Table 10 provides a concise summary of all experimental results.

5 | Discussion

The evidence presented in this study provides new insights to answer our research question: *What causes individual decision-makers to have their firm engage in supply chain guardianship, taking actions to stop fraudulent behavior at another firm?*

The patterns observed from the industry examples and the experimental results underscore the notion of supply chain guardianship as a multilevel phenomenon, with antecedents at the macro-, meso-, and microlevels. At the macrolevel, our industry examples suggest that supply chain guardianship is more effective when the potential guardian is downstream of the fraud. In contrast, our experimental evidence finds that individuals recommend similar levels of supply chain guardianship regardless of whether the fraud occurs upstream or downstream (Hypothesis 1, not supported). At the mesolevel, the industry examples highlight tone at the top as a key driver of fraud. This is supported by the experimental evidence that supply chain guardianship is higher when organizational leadership emphasizes an ethical decision environment (Hypothesis 2, supported). At the microlevel, industry examples underscore the importance of personal responsibility. This is further supported by the experiments revealing a negative correlation between state moral disengagement and supply chain guardianship, as well as a negative causal effect of process moral disengagement on supply chain guardianship (Hypotheses 3 and 4, supported). Table 11 summarizes the key takeaways at each level by integrating evidence from the analysis of the industry examples and the experiments.

With this combined theoretical and phenomenological contribution, we offer scholars and managers viable pathways to mitigate supply chain fraud. Supply chain fraud threatens firms' existence and places consumers at risk (Pullman et al. 2023). While prior research has focused on internal controls and the behaviors of fraud perpetrators, high-profile industry examples show that managers in connected firms, buyers, suppliers, or both can influence the trajectory of fraud by acting as supply chain guardians. As a multiactor and multilevel phenomenon, supply chain fraud requires a broader behavioral explanation. As Bendoly and Oliva (2025, 4) argue, when "phenomena are not straightforward and mechanisms are not obvious ...deliberate research inquiry is critical." Guided by their call, we have investigated which factors influence individual decision-makers to have their firms take action toward other supply chain members to stop fraud.

5.1 | Contributions to the Literature

We offer new theoretical insights to understand supply chain fraud by shifting the research focus to potential guardians. Grounded in real-world industry examples, we introduce the concept of supply chain guardianship, defined as the process through which decision-makers intervene to stop fraud

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TABLE 10 | Summary of experimental results.

	Hypotheses	Support by study A	B	C	D	Findings and contribution
Macro: Network	Hypothesis 1. *Supply chain guardianship will be stronger for supplier-side fraud compared to buyer-side fraud.*	No	No	No	—	Participants had similar levels of supply chain guardianship regardless of whether the illegal behavior was committed by a buyer or supplier. If there is an effect, it is likely both contextually dependent and a relatively small effect.
Meso: Organization	Hypothesis 2. *Supply chain guardianship will be stronger when the tone at the top emphasizes an ethical decision environment.*	Yes	—	—	—	Tone at the top changed supply chain guardianship levels, increasing it when the tone emphasized safety compared to when the tone at the top emphasized cost.
	Hypothesis 3. *State moral disengagement will be negatively associated with supply chain guardianship.*	Yes	—	Yes	—	State moral disengagement had a significant negative relationship with supply chain guardianship, with higher levels of moral disengagement associated with lower levels of supply chain guardianship, though this effect was attenuated if supply chain guardianship propensity was included as a control variable.
Micro: Individual	Hypothesis 4. *Process moral disengagement will decrease supply chain guardianship.*	—	Yes	—	Yes	Process moral disengagement had a significant negative causal relationship with supply chain guardianship, suggesting that reconstruing morality and reconstruing agency influence supply chain guardianship decisions.

Note: A hyphen indicates that the relationship was not tested in the study.

committed by another company in their supply chain. In a context in which data collection is challenging, we reveal three antecedents of supply chain guardianship by juxtaposing industry examples and theory. Our multilevel approach (e.g., Awaysheh et al. 2021) allows us to contribute to distinct theoretical debates at the macro-, meso-, and microlevels.

At the macrolevel, we complement network hole theory (Kim et al. 2015; Pathak et al. 2014; Lan et al. 2020) and structural fraud theory (DuHadway et al. 2022). While structural fraud theory focuses on the network roles of firms that commit and enable fraud, we foreground the role of supply chain guardians who intervene within their networks to protect their supply chains against fraudulent behavior. The industry examples pointed to greater guardian effectiveness when positioned downstream of the fraud, whereas the experiments found that individuals engaged in similar levels of guardianship regardless of whether the fraud occurred upstream or downstream. While recent research (DuHadway et al. 2022) and the industry examples point to the importance of network structure in supply chain fraud, our experiments did not yield consistent support for this theoretical prediction, suggesting a boundary condition (e.g., Busse et al. 2017) and an opportunity for future research to examine in greater depth when network position does—and does not—influence supply chain guardianship.

At the mesolevel, this study identified tone at the top of an organization as an important factor influencing supply chain guardianship. This finding corroborates social learning theory (Yiu et al. 2014) and earlier findings on how leadership tone affects fraudulent behavior within organizations (Hiekkataipale and Lämsä 2019; Moore et al. 2019; Rose et al. 2021). It also helps to explain previous research on supply chain fraud finding that supply chain competitive pressure increases observed levels of fraud (DuHadway et al. 2020). Our study shows that clearly communicated company values and priorities influence not only internal conduct but also external actions to curb fraud in supply chains. Additionally, our study also provides insights into the ongoing debate on hierarchy-light organizations, as discussed by Foss and Klein (2022), whereby a strong leadership tone that emphasizes safety encourages individuals to take actions to prioritize the well-being of others through supply chain guardianship, thus protecting their supply chains and their own organization against the negative ramifications caused by the unethical behavior of other firms.

At the microlevel, our study provides new evidence on how individuals psychologically distance themselves from ethical responsibility. While prior reviews (Newman et al. 2020) highlight that most research on moral disengagement uses cross-sectional designs, we manipulate process moral disengagement experimentally. In Study A, we replicate prior findings on postdecision moral disengagement (e.g., Moore et al. 2012; Kaufmann et al. 2018; Pournader and Kach 2024). In Study B, we provide the first direct evidence of a causal relationship between process moral disengagement and supply chain guardianship behavior. This approach opens a novel empirical path for examining how moral disengagement operates as a cognitive mechanism in ethical decision-making.

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TABLE 11 | Key takeaways from multi-method approach.

	Industry examples	Experiments	Key takeaways
Macro: Network	Network structure plays a critical role in both supply chain fraud and supply chain guardianship. It influences the feasibility of addressing fraud and the likelihood of successful intervention.	Participants were motivated at similar levels to confront fraud when it was supplier-side or buyer-side fraud.	Participants were motivated to confront supply chain fraud, regardless of where it occurred in the supply chain. Whether those efforts are successful or not, and what forms supply chain guardianship might take is likely highly dependent on real-world context where the fraud occurs where network position can change how effective supply chain guardianship efforts are.
Meso: Organization	Upper management priorities set the tone for an organization, shaping decisions around fraud and undermining supply chain guardianship if it conflicts with those goals.	Tone at the top that emphasized safety increased supply chain guardianship compared to tone at the top that emphasized cost.	The strong focus on cost-driven or other priorities can derail a more balanced approach to supply chain management that considers supply chain fraud, leading to less optimal decision-making. When firms embraced cultures that considered ethical decision-making, those firms protected their firm and their supply chains from wrongdoing, while those that had strong cultures of cost ended up facing significant negative penalties, including bankruptcy.
Micro: Individual	Taking responsibility for ethical behavior is related to supply chain guardianship decisions, and those decisions were often made very early in the cases.	State moral disengagement was negatively related to supply chain guardianship and process moral disengagement changed behavior by (not) framing decision-making around ethical choices and responsibility.	Ethical decision-making can be influenced by promoting ethical framing and taking responsibility for the decisions that individuals make within an organization. These cultures need to be developed *before* the ethical situation emerges as individual choices are made in the organizational context. When firms pass the responsibility for ethical decisions to others, less ethical decisions are made.

Taken together, our findings on supply chain guardianship and its influencing factors deepen our understanding of supply chain fraud in several important ways. Most notably, we shift the analytical lens from the perpetrators of fraud to the bystanders, namely those positioned to observe and potentially act on wrongdoing by others in supply chains. We contribute to the body of research on behavioral operations management by linking concepts from leadership and moral cognition with network-based views of interfirm misconduct by developing and testing a multilevel framework that explains variation in supply chain guardianship. Our approach aligns with the call for "Path B" research as outlined by Bendoly and Oliva (2025, 7), who note that: "the process of creating constructs and narratives to describe phenomena and the abductive articulation of theoretical arguments … are as much a contribution as the later empirical testing of those propositions". We believe that this study exemplifies this process and offers an initial foundation for a broader behavioral theory of fraud response in supply chains.

5.2 | Implications for Managers

Our analysis of fraud and guardianship industry examples highlights the financial and legal risks that firms and individual managers face when they fail to address supply chain fraud. At the same time, supply chain guardianship offers tangible benefits, protecting not only fraud victims but also firms themselves. Industry examples show that the companies acting as guardians received significantly lower penalties when the fraud was exposed. Therefore, supply chain guardianship can be seen as a business priority as well as an ethical obligation. To derive actionable recommendations for managers to enhance supply chain guardianship, we discussed our findings with a focus group of five senior managers. Additional information regarding the focus group participants and process is included as an Supporting Information. As one focus group participant noted, decision-makers must understand that "what is bad for our supply chain is bad for our company." Instead of relying only on moral appeals, organizations can emphasize that guardianship aligns with strategic interests. For example, guardianship might be useful to manage reputational risk (see Schleper et al. 2024). We encourage future researchers to investigate how supply chain guardianship can lead to other positive outcomes such as higher employee retention, an improved public image, and increased product quality, and mitigate negative outcomes, including product recalls, legal liability, and supply chain disruptions. In addition, supply chain guardianship may also be connected to heightened partner attractiveness and trust, as well as better financial performance.

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While the archival evidence suggests that firms are more effective at addressing fraud that occurs upstream of potential guardians, the experimental findings show that individuals engage in similar levels of guardianship regardless of the fraud location. Focus group participants echoed this, with some arguing that companies bear full responsibility for all components that they integrate into their products, while others questioned "how far should we, as a company, feel responsible for what happens downstream? Their downstream impact is probably something that many companies likely don't give much thought to." Given this ambiguity, firms must develop clear internal policies to guide their response to fraud occurring both upstream and downstream.

Tone at the top is an important differentiator as an inappropriate tone can instigate fraud, while a suitable tone can enhance supply chain guardianship. The industry examples show that tone at the top increased fraud and suppressed supply chain guardianship when companies faced strong pressures to achieve financial goals such as cost reduction. In contrast, our experiments find that a tone emphasizing safety could instead increase guardianship. Leadership must extend beyond broad ethical appeals and instead make ethical decision-making a clear, actionable priority. As one senior executive in our focus group stated: "It all comes down to the behavior of the individual. You need to make them more sensitive, train them, and work with them ... If you do not do that, the preaching, strategizing, sustainability reports, and CEO speeches will have very little to no effect." Cultivating ethical decision-making requires reinforcing social norms within the organization or risking them being disregarded, as highlighted by one focus group participant: "If I work in an environment where safety is disregarded, I might even fear negative consequences for my career if I speak up too much about safety issues, because no one else values them."

Beyond leadership influence, process moral disengagement emerged as a key factor that reduces accountability and can lead to fraud. Our findings show that de-emphasizing individual responsibility—as seen in GM's committee-driven culture—leads to complacency and inaction. Developing an organizational culture that amplifies the importance of ethical decision-making and taking responsibility can increase supply chain guardianship and prevent fraud not only within an organization but throughout the supply chain.

5.3 | Limitations and Avenues for Future Research

Our research design has several limitations, each of which offers opportunities for future research. First, the two measures of supply chain guardianship that we examined do not encompass all possible actions to stop fraud. To address this, we included a more general measure of supply chain guardianship *propensity*, which serves as a measurement scale for supply chain guardianship that can be applied more generally. The full measure and its validation are provided in the Supporting Information.

Second, although the industry examples suggested that network position influenced supply chain guardianship efficacy, our experiments could not account for differences in effectiveness. Despite the challenges of gathering rich and realistic data in this field, we encourage future researchers to use primary data and assess the effectiveness of supply chain guardianship behavior. Studies involving firms involved in fraud, potential guardians, general managers, compliance teams, lawyers, and victims could also provide deeper insights into these stakeholders' behaviors and decision-making (e.g., Grimm et al. 2024).

Third, while our study adopted a multilevel approach and investigated factors at the macro, meso, and microlevels, other factors might also influence supply chain guardianship. Although we included controls for some individual characteristics (e.g., Machiavellianism, age), we cannot rule out the influence of further individual differences on supply chain guardianship (e.g., supply chain guardianship propensity, ethical framing, financial position, ownership). Similarly, meso- and macrolevel factors merit future research to examine supply chain guardianship, such as organizational culture, power, trust, proximity to consumers, industry pressures, and relationship history between the supply chain partners. Moreover, research investigating the outcomes of fraud and guardianship behaviors on reputational risk, employee motivation and retention, legal exposure, financial performance, and supply chain relationships is likely to yield additional insights. Given the causal complexity of fraud-related decision-making, it is essential to consider influencing factors and their collective interdependencies simultaneously. To achieve this, a configurational approach (Ketchen et al. 2022; Rönkkö et al. 2025) could identify combinations of causal factors associated with high versus low levels of supply chain guardianship.

Although our experiments primarily focused on decision-making after fraud was confirmed, real-world fraud industry examples often involve uncertainty. Accordingly, future research should investigate how decision-makers respond when fraud is suspected but not yet confirmed. For example, focus group participants indicated that higher levels of proof might be required to engage with downstream supply chain actors compared to addressing upstream fraud. Given that understanding how decision-makers navigate uncertainty could further clarify factors influencing supply chain fraud and guardianship, we encourage future scholars to investigate temporal effects (Cornwell 2015; Grimm et al. 2024) in supply chain fraud.

While our study focused on supply chain fraud, the concept of supply chain guardianship could apply to a broader range of behaviors in supply chain management, such as monitoring technologies (Scott et al. 2021), the intersection of legal and illegal supply chains (Krause and Pullman 2021), wildlife trafficking (Duensing et al. 2023), or further forms of harmful or opportunistic behavior (Skowronski et al. 2020). Additionally, the concept could be expanded beyond reactive measures to include preventive measures that mitigate risks before misconduct occurs.

Disclosure

The data for this paper are original and have not been used in any other publications.

Conflicts of Interest

The authors declare no conflicts of interest.

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