

Trust violations in buyer–supplier relationships: Spillovers and the contingent role of governance structures

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Abstract

Buyer–supplier relationships provide ample opportunities for trust violations to occur. Yet the literature on the impact and outcomes of violations of trust in buyer–supplier relationships is underdeveloped. In this study, we report the results from three complementary scenario-based experiments that evaluate the impact of a supplier-induced violation on a buyer's trust in that supplier. We establish a spillover effect of supplier integrity violations onto the buyer's competence dimension of trust, and of supplier competence violations onto the buyer's integrity dimension of trust. We also examine the role of inter-organizational governance, finding that contractual and relational governance are differentially effective at mitigating trust damages experienced by a buyer after a supplier violation. Specifically, we observe that relational governance helps mitigate damages to buyer's trust following a supplier competence violation, whereas some evidence suggests that contractual governance serves to preserve buyer's trust following a supplier integrity violation. These findings have important theoretical and managerial implications for the management of buyer–supplier relationships. We discuss why the governance structures adopted by firms involved in a buyer–supplier relationship have distinct impacts on trust assessments following a violation.

KEYWORDS

behavioral supply management, contractual governance, relational governance, supplier management, trust violations

1 | INTRODUCTION

Effective buyer–supplier relationships are widely considered a source of competitive advantage for firms, with trust playing a prominent role in successful collaborations (Kwon & Suh, 2004; Wagner et al., 2011; Whipple & Frankel, 2000). However, buyer–supplier relationships are also prone to trust violations—that is, the failure of one party to perform in line with the expectations of the other (Anderson & Jap, 2005; Kaufmann et al., 2018; Villena et al., 2011). These trust violations can be

particularly harmful to buyers, as they often entail negative repercussions downstream. For example, J.C. Penney was directly linked to a supplier whose grossly negligent managerial practices led to the 2013 Bangladeshi factory collapse, causing lasting damage to the retailer's reputation (O'Connor, 2014). In another example, numerous automotive manufacturers were subject to factory closures and costly recalls following Takata's decision to use an unfamiliar, and unfortunately unsuitable, chemical in airbag production (Barry & Plungis, 2019). Given the fragile nature of trust, along with its salient role in

maintaining effective buyer–supplier relationships, research offering insight into the management of trust violations is both theoretically and managerially valuable.

Previous literature acknowledges the need to dimensionalize trust into distinct constructs representing competence-based trust and integrity-based trust (Connelly et al., 2018; Das & Teng, 2001). *Competence-based trust* is defined as the extent to which the trustor is confident that the trustee possesses the skills, knowledge, and ability to perform duties as required (Kim et al., 2004). *Integrity-based trust* is defined as the perceived level of adherence to an acceptable standard of behavior the trustor maintains in the trustee (Mayer et al., 1995). However, with a few notable exceptions (i.e., Ireland & Webb, 2007; Pulles et al., 2014; Wang et al., 2014), much of the recent supply chain management research in this area does not consider the dimensionality of trust (Kaufmann et al., 2018; Ta et al., 2018). This represents a missed opportunity in the supply chain management (SCM) literature, as it is argued that these facets of trust develop and evolve differently throughout a relationship (Janowicz-Panjaitan & Krishnan, 2009; Kim et al., 2004; Long & Sitkin, 2006). This dimensionalization also extends to trust violations in buyer–supplier relationships, which can be distinguished as competence- and integrity-based as well (Lewicki & Brinsfield, 2017). Previous literature has been instrumental in showing how specific types of trust violations need to be responded to in specific ways for the remedies to be effective (Dirks et al., 2011; Ferrin et al., 2007; Kim et al., 2006). However, these repair mechanisms are contingent on a thorough understanding of what trust dimension has been breached. Our contribution to this discourse involves developing and testing theory to understand how the *type* of violation damages trust in buyer–supplier relationships. A *spillover* effect refers to the impact that a seemingly unrelated event in one area can have on another (Hora & Klassen, 2013; Nichols et al., 2019; Ried et al., 2020); in our research we consider whether integrity (competence) violations spillover to also damage the competence (integrity) dimension of trust, or if damages are confined to only their corresponding trust dimension. Without a clear understanding of the breadth of impact of competence and integrity violations, efforts at repair and rebuilding may be unsuccessful and lead to supplier switching (Mir et al., 2017) or relationship dissolution (Chen et al., 2019). Thus, the first research question that we address is: *Is there a spillover effect of violation type on the dimensions of trust damaged?*

It is also important to consider the context in which trust violations occur. Firms establish governance structures in part to deal with trust violations. Contractual governance plays a critical function in codifying the terms

of an agreement between firms (Klein et al., 1978; Williamson, 1985). Alternatively, relational governance emphasizes flexible arrangements, extensive information exchange, and collaboration to establish a shared value system and sense of solidarity between firms (Dyer & Singh, 1998; Heide & John, 1992; Ring & Van de Ven, 1992). Prior research demonstrates the role of governance structures in minimizing the likelihood of opportunism or violations (Handley & Angst, 2015; Liu et al., 2009; Wang et al., 2016), and on examining mechanisms effective at repairing trust after a violation (Wang et al., 2014). Recently, Harmon et al. (2015) examine how explicit versus tacit contractual violations impact trust in an inter-organizational setting, with their work focusing on relationships with no prior history. However, trust violations occur not only at the beginning of a buyer–supplier relationship but frequently after formal agreements and informal norms have become solidified over time (Malhotra & Lumineau, 2011). Extant research highlights this critical distinction and suggests that pre-existing relationship conditions can meaningfully impact how violations by one party are perceived by the other (Ganesan et al., 2010; Koza & Dant, 2007; Lount et al., 2008). For instance, Weber (2017) proposes that existing governance structures shape how violations are perceived, how attributions of root cause are made, and which remedies are deployed. Thus, examinations of trust violations and repair within the context of established inter-organizational relationships should consider governance issues. In this research, we extend theory regarding how existing governance structures—contractual and relational—shape the impact of trust violations once they occur. Specifically, we address the following second research question: *What role does the existing governance structure play in mitigating trust damages following violation?*

We investigate these research questions within the context of a buyer–supplier relationship, wherein the buyer is the trustor and the supplier violates that trust. We test our theoretical model using data collected from three scenario-based experimental studies. The design of our experiments allows us to evaluate trust damages in consideration of the contingencies of violation type and governance. Importantly, the use of three separate experiments allows us to best manage the trade-offs inherent to experimental design (Eckerd et al., 2021). In Study 1, we conduct a repeated measures (i.e., within-subjects) experiment with Amazon Mechanical Turk (MTurk) workers. We follow this with Study 2, also using MTurk workers, but employing a between-subjects design with a distinct control condition. Finally, in Study 3, procurement professionals participate in a quasi-experiment assessing an experimentally-induced violation grounded in actual buyer–supplier relationships. The consistency of

our findings across the three studies is a powerful indicator that our observed results are credible and not simply an anomaly of a single experimental design or a single sample (McGrath, 1982).

Our findings offer interesting and sometimes counter-intuitive contributions to the literature. First, we find support for spillover effects of supplier integrity violations onto the buyer's competence trust in the supplier, as well as competence violations onto integrity trust. Although the former is well-established in the inter-personal trust domain (Connelly et al., 2012), the latter finding is unique to the inter-organizational domain and represents a contribution to the broader trust violations literature (Lumineau et al., 2015). Second, in evaluating the effect of inter-organizational governance structures, we find support that relational governance is useful in mitigating damages to the buyer's trust in a supplier following a competence violation by the supplier, consistent with our expectations. We also find some evidence that contractual governance is useful in mitigating damage to competence trust following an integrity violation; this finding challenges previous research suggesting contractual-based structures are ineffective when dealing with violations of a values-based nature (Sitkin & Roth, 1993; Zucker, 1977). However, our findings regarding the aftermath of integrity violations was less clear. Our findings open avenues for further exploration into the nature of these relationships.

In summary, our study advances the buyer-supplier trust violation literature by exploring the complex effects of different types of supplier violations across a buyer's trust dimensions. This is important because the type of trust damaged has implications for how the relationship might be restored (Wang et al., 2014). We further explore the contingent effects of contractual and relational governance structures in their ability to mitigate the buyer's trust damaged due to these supplier violations. Our research is practically important because sufficiently damaged trust may manifest itself in more tangible negative exchange behaviors including vengeful actions and relationship termination (Chen et al., 2019; Lumineau & Malhotra, 2011; Mir et al., 2017; Ta et al., 2018), unless appropriate mechanisms are in place to deal with the violation.

2 | THEORETICAL BACKGROUND

2.1 | Trust violations in buyer-supplier relationships

Trust is described as “the willingness of a party to be vulnerable to the actions of another party” (Mayer et al., 1995, p. 712). Previous literature recognizes trust as

a multi-faceted construct, accordingly we follow a well-established typology of two dimensions of trust: integrity-based trust and competence-based trust (Connelly et al., 2018; Janowicz-Panjaitan & Krishnan, 2009; Kim et al., 2004). Although numerous other categorizations exist in the broad literature on trust (see Appendix S1 an overview of these frameworks), the dimensions of integrity trust and competence trust are commonly leveraged in the inter-organizational literature (Lui & Ngo, 2004; Malhotra & Lumineau, 2011; Nooteboom, 1996). *Integrity-based trust* is defined as the perceived level of adherence to an acceptable standard of behavior the trustor maintains in the trustee (Mayer et al., 1995). *Competence-based trust* refers to the extent to which the trustor is confident that the trustee possesses the skills, knowledge, and ability to perform duties as required (Kim et al., 2004).

Similarly, trust violations take different forms. As perceived integrity and competence are important dimensions of a buyer's trust in a supplier (Morgan & Hunt, 1994; Whipple & Frankel, 2000), we correspondingly concentrate on integrity- and competence-based trust violations. *Integrity violations* convey negative information to the buyer regarding the values and principles which inherently guide the supplier's behaviors, whereas *competence violations* send a negative signal regarding the supplier's knowledge, technical skills, and capabilities (Ferrin et al., 2007; Kim et al., 2004). We draw on this established distinction of integrity versus competence to operationalize both the type of supplier violation (i.e., our independent variable) and the change in buyer's trust due to the violation (i.e., our dependent variable of interest).

Prior research on integrity- and competence-based trust violations establishes integrity violations as the most destructive to trusting beliefs and behaviors (Dirks et al., 2011; Kim et al., 2006). Drawing on the concept of hierarchically restrictive schema (Reeder & Brewer, 1979), these scholars argue that a single competence failure is a relatively weak signal of incompetence whereas a single integrity violation is a more reliable indicator of the transgressor's dishonesty (Weber, 2017). As such, violations of integrity generally have a greater *depth* of impact; they are more damaging to integrity trust than competence violations are to competence trust. However, it is also critical to understand how these dimensions are distinctively affected by the type of violation. We seek to understand competence and integrity violations in terms of their *breadth* of impact in buyer-supplier relationships. That is, to what extent do supplier integrity (competence) violations spillover to damage a buyer's competence (integrity) trust in the supplier? This is a critical question to ask, as efforts for repairing relationship trust hinge on the type of trust that is damaged (Gillespie & Dietz, 2009; Wang et al., 2014). Our study theoretically advances the

literature on trust violation in buyer–supplier relationships by addressing this important question.

2.2 | Contractual and relational governance

Buyer–supplier relationships are managed through a combination of formal and informal arrangements, identified in the literature as contractual and relational governance structures, respectively (Cao & Lumineau, 2015). *Contractual governance* refers to “agreements in writing between two or more parties, which are perceived as legally binding” (Lyons & Mehta, 1997, p. 241) and is a central mechanism for governing buyer–supplier relationships (Mahapatra et al., 2010). Contracts allow firms to coordinate resources across firm boundaries and establish appropriate safeguards against exchange hazards (Lumineau & Henderson, 2012; Poppo & Zenger, 2002). *Relational governance*, grounded in relational exchange theory (Macneil, 1980; Palmatier et al., 2007), is defined as the extent to which actions in the buyer–supplier relationship are socially controlled through norms shared across the organizations in exchange (Li et al., 2010; Poppo, Zhou, & Zenger, 2008). These norms are commonly identified as flexibility, information sharing, and solidarity (Lumineau & Henderson, 2012; Tangpong et al., 2010). Compared with contractual governance, relational governance structures are informal in nature, and are generally established as “handshake agreements” between parties (Macaulay, 1963).

Although studies suggest that contractual and relational governance may induce specific behaviors (e.g., opportunism, Wang et al., 2016) or affect performance (Handley & Benton, 2009; Mahapatra et al., 2010) and trust (Cai et al., 2010), we lack a thorough understanding of the effectiveness of governance structures to mitigate damages occurring on different dimensions of trust. We develop theory concerning how contractual and relational governance differentially mitigate the trust damaged due to integrity and competence violations. This approach responds to recent observations that research has often overlooked the possible contingency effects of inter-organizational governance structures (Cao & Lumineau, 2015; Wallenburg & Schäffler, 2014).

3 | HYPOTHESIS DEVELOPMENT

3.1 | The impact of violations on trust

Logically, one would anticipate supplier integrity violations to relate directly to damage in a buyer’s integrity trust in

the supplier, and competence violations to relate directly to damage in competence trust. Following prior research (Schweitzer et al., 2006), we accept these baseline associations as a given and do not present formal hypotheses for them. However, prior research has also demonstrated important differences in how information regarding integrity and competence is processed (Kim et al., 2003; Weber, 2017). Previous theoretical development suggests that information concerning integrity violations is considered generalizable across relationship domains, whereas information concerning competence violations tends to be context-specific (Connelly et al., 2012).

This prior scholarship has advanced that an integrity violation is viewed as a strong indicator of low integrity overall (Kim et al., 2006; Lewicki & Brinsfield, 2017). Due to the perceived intensity and affective nature of integrity violations, their impact is harder to constrain, thus making it likely that they will spillover to other dimensions of the relationship (Dirks et al., 2009; Sitkin & Roth, 1993). Previous research has explored this spillover with respect to a party’s values overall, for example, if one demonstrates low integrity on the golf course, then it can be expected they will exhibit low integrity in business dealings (Lewicki et al., 1998). We suggest that supplier integrity violations will not only spillover across contexts but also spillover to negatively impact a buyer’s *competence* trust in the supplier post-violation. Integrity violations directly bring into question whether the supplier’s values—and hence motives—are consistent with those of the buyer’s own values (Fein, 1996). Moreover, integrity violations are considered intentional acts (Tomlinson & Mayer, 2009). This can lead the buyer to question why the supplier was motivated to act in a dishonest manner. At their root, disingenuous actions may be compensation for a deficiency in ability, skills, or knowledge (Baucus & Near, 1991; Harris & Bromiley, 2007). Due to this logic, we posit that supplier integrity violations will have a spillover effect on a buyer’s competence trust evaluations in that supplier.

On the contrary, previous research shows that individuals will underweight negative information associated with failures of competence (Dirks et al., 2011; Kim et al., 2006). If an individual has demonstrated competence with a task previously, a single incident to the contrary may be discounted and attributed to transient conditions or idiosyncratic contextual factors (Connelly et al., 2012; Reeder & Brewer, 1979). Due to the situational specificity and cognitive orientation of competence violations, it is theoretically argued that the fallout from competence violations tends to be narrow in scope and not extrapolated to other facets of the relationship (Dirks et al., 2009; Mesquita, 2007; Sitkin & Roth, 1993; Ullmann-Margalit, 2004). However, this logic was

developed at the inter-individual level. In extending it to the supply chain level, we suggest that supplier competence violations in this context may be perceived differently by a buyer. A trust violation in a buyer-supplier relationship usually involves a higher degree of coordination—between different individuals and sometimes even between different departments—than an isolated violation from a single individual. Organizational decisions such as purchasing materials typically have a collective dimension and go through a chain of actors. Ordering insufficient or defective materials, for instance, implies to circumvent internal monitoring. Purchasing choices are very consequential for a supplier as they involve their organizational expertise and legitimacy as business partners. Therefore, in this context, a competence trust violation between buyers and suppliers is much less likely to be associated with a one-time individual mistake or idiosyncratic individual factors. In contrast, it is more likely to be perceived as related to intentional organizational issues. Indeed, the organizational dimension of buyer-supplier interactions makes it look more deliberate and purposive than a simple lack of individual competence. Specifically, a competence violation by a supplier poses a real concern to the buyer that the supplier potentially misrepresented itself at some point (e.g., proposal and negotiations). It also may be argued that for a supplier that has demonstrated ability in the past (e.g., when being qualified for the business), then a failure may signal *intentional* underinvestment or lack of effort by the supplier. This is consistent with issues of moral hazard or shirking as identified in Stump and Heide (1996) and Wathne and Heide (2000). This differentiating aspect of buyer-supplier exchanges compared with individual-level relationships leads us to argue that a supplier competence violation will indeed spillover to the buyer's integrity trust in that supplier. We therefore formally present the following hypotheses:

H1 A supplier's integrity trust violation will significantly damage a buyer's competence trust in that supplier (spillover effect).

H2 A supplier's competence trust violation will significantly damage a buyer's integrity trust in that supplier (spillover effect).

3.2 | Violations and governance

3.2.1 | Integrity violations and governance

Integrity violations by a supplier speak to the core values and principles guiding that supplier's behavior.

We propose that relational governance is likely to exacerbate the buyer's trust damaged due to an integrity violation by a supplier. This is because of the discrepancy between the buyer's prior expectations and the transgression. Relational governance relies on flexibility, information exchange, and solidarity; in all, norms that emphasize a collaborative outlook with long-term orientation (Dyer & Singh, 1998; Ring & Van de Ven, 1992). Experiencing an integrity violation in a situation involving high relational governance is likely to be interpreted as a betrayal (Elangovan & Shapiro, 1998; Tripp & Bies, 2009) and foster a strong sense of injustice (Tripp & Bies, 2009). Such betraying events related to integrity issues go against the existing emotional and affective links (Jones & Burdette, 1994). An unexpected supplier integrity violation represents a strong disconfirmation of the presumed relational norms, and as such is expected to be met with a more severe response by the buyer.

On the contrary, we suggest that contractual governance will be better suited to mitigate a buyer's trust damaged due to an integrity violation by the supplier. Contracts specify terms of an agreement between parties, define what is and is not allowed, and the outcomes to be delivered (Luo, 2002; Reuer & Ariño, 2007). As formal legal documents, contracts support an objective, impartial, and unbiased assessment of violations. The formal nature of this governance structure frames the relationship in a calculative business mindset (Ghoshal & Moran, 1996). Contracts also often have provisions outlining dispute resolution procedures (e.g., Argyres & Mayer, 2007; Ariño & de la Torre, 1998), which give the victim confidence that appropriate remedial mechanisms are available. Indeed, through the use of authority mechanisms (Williamson, 1985), contracts allow the deployment of sanctions and penalties in case of violating behaviors. In this manner, contractual governance allows the victim to approach the violation and associated response with objectivity. This argument is further supported by Lumineau and Malhotra (2011, p. 536) who observed that “contractual governance not only allows, but can encourage the parties to consider their rights and potential liabilities [...] Contracts typically contain explicit provisions regarding the sanctions that can be imposed on the offending party.” For these reasons, we advance that a reliance on contractual governance will protect the buyer from trust damages in the event of a supplier integrity violation. We do not suggest that contractual governance will make the buyer immune to trust damages under these circumstances—the supplier is still causing a violation in the exchange; however, the response under contractual governance is not expected to be as severe as that under relational governance.

We propose the logic above will be directionally similar for both dimensions of buyer trust. However, to allow for the possibility that these contingency effects may be directionally similar yet differ in magnitude between competence and integrity trust, we present and test a separate hypothesis for each dimension. Approaching our hypothesis in this way allows us to test each dimensions' respective strength, as well as how the pre-existing governance structures impact the previously hypothesized spillover effects. In sum, we posit:

H3 When experiencing an integrity violation by a supplier, contractual governance will be more effective than relational governance at mitigating a buyer's (a) integrity trust damages and (b) competence trust damages.

3.2.2 | Competence violations and governance

Competence-based violations occur when the supplier demonstrates a deficiency in the skills or knowledge required to conduct the task competently. We propose that established relational norms may mitigate buyer's trust damages due to a competence violation by the supplier. Relational governance provides a foundation for working together to resolve a skills issue. Moreover, a reliance on relational norms makes the relationship more resilient (Brockner et al., 1992), conciliatory (Tomlinson et al., 2004), and forgiving (Fehr & Gelfand, 2012). With relational governance, the event of a competence violation is more likely to be seen as an exception (Schilke et al., 2013), thus mitigating any damage to trust. Therefore, with competence-based violations, we expect established relational norms will encourage the buyer to give the supplier the benefit of the doubt and thus attribute the violation to a remediable, one-time mistake.

We alternatively argue that an emphasis on contractual governance will be less effective at mitigating the buyer's trust damaged due to a competence violation by the supplier. Contractual governance stresses agreement about the work that will be performed and delivered; it documents the skills a supplier claims to possess and its ability to deliver under the terms defined (Keller et al., 2021; Salbu, 1997). A competence violation provides a negative signal about the supplier's ability to meet those contract terms. This signal falls out of line with what was carefully developed in the contract, and requires action by both parties to correct for the supplier's insufficiencies going forward. Meanwhile, contractual governance tends to limit the flexibility and cooperativeness necessary to cope with such uncertainty

(Cavusgil et al., 2004). Further, the signal associated with a competence violation calls into question discrepancies in supplier claims about behaviors and outcomes identified during contract development, of which authority mechanisms may not be able to remedy. For these reasons, we suggest the following:

H4 When experiencing a competence violation by a supplier, relational governance will be more effective than contractual governance at mitigating a buyer's (a) integrity trust damages and (b) competence trust damages.

4 | OVERVIEW OF STUDIES

Our aim is to elucidate how competence and integrity violations by a supplier differentially damage buyer's trust in that supplier, as well as to advance our understanding of how existing governance structures shape trust damages following violation. As our research model is distinctly causal in nature, we use an experimental methodology as it is the best approach for establishing causality (Croson et al., 2007; Guide & Ketokivi, 2015). In using this approach, our research design must balance two empirical challenges: (1) guarding against endogeneity bias due to unobserved variables (i.e., a threat to internal validity), and (2) maximizing the degree to which our findings generalize to realistic managerial situations (i.e., external validity) (Aguinis & Bradley, 2014; Grant & Wall, 2009). An additional consideration is the choice between a within-subjects and between-subjects experimental design. On the one hand, the within-subjects design allows us to measure trust both before and after the presentation of the violation treatment, which is most reflective of the phenomena in practice. Alternatively, a between-subjects design allows us to avoid measuring trust pre-violation and minimizes the potential for cueing the subjects as to the intent of the research (i.e., demand effects) (Charness et al., 2012).

Reliance on a single study and experimental design would restrict our ability to sufficiently mitigate these competing challenges and have confidence in the validity of our findings. Therefore, we conduct three separate scenario-based experiments to test our hypotheses. In doing so, we can derive more robust insights into the relationships of interest. In Study 1, we control both the type of supplier violation and the governance structure in a within-subjects experiment conducted with MTurk workers. We follow this with Study 2, also using MTurk workers, and controlling both the type of supplier violation and the governance structure. In contrast with Study 1, the second study adheres to a between-subjects

design that only measures trust post-violation to minimize potential demand effects. In Study 2, we also include a control condition of no violation. Both Studies 1 and 2 prioritize internal validity at the sacrifice of some degree of external validity. Therefore, in Study 3, we engage procurement professionals in a quasi-experiment in which we control violation type but measure actual pre-existing relationship conditions (i.e., governance structure). The design for Study 3 affords us insight into the extent to which the findings from the tightly controlled Studies 1 and 2 generalize to a real-world industry context. Thus, Study 3 increases external validity while foregoing some internal validity due to our inability to perfectly control for all pre-existing relationship conditions. Collectively, these three studies offer a more valid and rigorous assessment of the research hypotheses than could be obtained via a single study.

4.1 | Study 1

4.1.1 | Participants

In Study 1, we recruited 467 MTurk workers to participate in an online scenario experiment. To qualify for participation, we required that workers be based in the United States, have at least a four-year college degree, and have some level of post-college work experience. After removing 45 participants who failed basic attention checks (Abbey & Meloy, 2017), the final sample included 422 participants. Our participants had a mean age of 35.2 years, mean professional work experience of 13.7 years, and were 57% male. Participants providing good quality effort (the 422 participants noted above) were paid \$1.50 for their participation. We used Qualtrics software to administer the experiment. Additional information supporting the use of MTurk and the practices we employed to assure validity and reliability of the data are provided in Appendix S2.

4.1.2 | Design, manipulations, and measurement

Study 1 follows a 2 (*low* vs. *high contractual governance*) \times 2 (*low* vs. *high relational governance*) \times 2 (*integrity* vs. *competence violation*) repeated measures research design. As this design allows us to control (i.e., manipulate) the nature of the governance structure pre-violation and the supplier violation type, it has the advantage of minimizing concerns of endogeneity with regard to these factors.

The design of our vignettes followed that used in prior studies (Ganesan et al., 2010; Joshi & Arnold, 1997), wherein participants were asked to envision themselves in the position of a purchasing manager responsible for the procurement of microchips from a midsize electronic equipment manufacturer. All participants were provided the exact same information describing the relationship context. This consistent baseline information describes a relationship with low switching difficulty and a supplier that, in the past, has exhibited high levels of competence and integrity. Providing all participants with an identical baseline context and only changing the randomly assigned treatments minimizes the problem of confounds. Furthermore, it is important to include variables which are theoretically important in this decision-making context to help avoid model misspecification due to omitted variables, a factor that is critical in assuring the validity of vignette designs (Aguinis & Bradley, 2014). To this end, we include a measure of switching difficulty. Following administration of the baseline scenario, we assessed participants' initial perceptions of switching difficulty, competence trust, and integrity trust to ensure these factors were not biasing the results. Participants reported on these aspects using multi-item measures, which are included as control variables in our subsequent analysis. *Switching difficulty* is measured using a previously validated three-item scale (Handley & Gray, 2013). The multi-item measurements for *competence trust* and *integrity trust* are based on the seminal work of Mayer and Davis (1999) but abbreviated to accommodate the simulated buyer-supplier relationship modeled in Study 1. We also used scenarios to manipulate the structure of the relationship in terms of both relational and contractual governance. Based on a conceptualization used extensively in the literature (Heide & John, 1992), *relational governance* scenarios described either low or high reliance on relational norms: flexibility, information exchange, and solidarity. *Contractual governance* scenarios described low or high levels of the firms' usage of the inter-organizational contract to regulate behavior, bind each party's responsibilities, and resolve disagreements (Jap & Ganesan, 2000; Jayaraman et al., 2013; Li et al., 2010). Our use of well-established operationalizations of our variables helps assure validity of the experiment (Vargas et al., 2017). Participants were randomly assigned one relational governance treatment and one contractual governance treatment to describe the extent to which these governance mechanisms are used to manage the relationship.

Next, participants were presented with a scenario describing a violation caused by the supplier. The *violation type*, randomly assigned, characterizes either a competence-based or integrity-based supplier violation,

consistent with the operationalization of these measures as described. In both cases, the supplier's actions cause a delay to the buyer's customers, thereby causing harm to the buying firm, similar to what was illustrated with the J.C. Penney and Takata examples from the Introduction. Importantly, this also provides a level of control regarding the severity of the violation. Participants were asked to report again on the measures of *competence trust* and *integrity trust* in consideration of the violation, as well as report basic demographic information. As our interest lies in the extent to which a buyer's trust is damaged due to a supplier violation, our dependent variable reflects the *change in trust* measured by: post-violation trust less baseline (i.e., pre-violation) trust. Thus, a negative change in trust value represents damage to trust. Each participant's gender (1 = female) and age are included as additional control variables.

Manipulation checks were conducted for *relational governance*, *contractual governance*, and *violation type*. All manipulations in Study 1 were deemed successful based on the highly significant differences between treatments, thereby bolstering the construct validity of the study (Perdue & Summers, 1986). The manipulation checks, vignettes, and all measures are provided in Appendix S3, along with the Cronbach α values for multi-item scales. Table 1 provides the descriptive statistics and correlations among the variables used in the Study 1 analysis.

4.1.3 | Analysis and results

To test our first two hypotheses regarding the spillover effect of supplier violations, we conducted two-sample

TABLE 1 Study 1—Descriptive statistics and correlations

Variable	Mean	Std Dev	Correlations											
			[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]		
[1] Gender (1 = female)	0.43	0.50	1.00											
[2] Age	35.17	10.72	0.15*	1.00										
[3] Switching difficulty	2.41	1.40	0.04	-0.05	1.00									
[4] Violation type (1 = integrity)	0.49		-0.02	0.03	0.07	1.00								
[5] Contractual governance	0.50		0.00	-0.02	0.03	-0.04	1.00							
[6] Relational governance	0.49		0.02	0.04	0.02	-0.01	-0.03	1.00						
[7] Competence trust (baseline)	6.25	0.75	0.02	0.09	-0.29*	-0.07	0.07	0.01	1.00					
[8] Integrity trust (baseline)	6.15	0.78	0.04	0.11*	-0.25*	-0.06	0.07	0.00	0.80*	1.00				
[9] Competence trust (post-violation)	4.36	1.42	0.02	0.09	0.04	-0.05	0.06	0.21*	0.20*	0.20*	1.00			
[10] Integrity trust (post- violation)	3.83	1.85	0.04	-0.03	0.10*	-0.65*	0.07	0.16*	0.02	0.00	0.44*	1.00		

*Significant at $p < 0.05$; $N = 422$.

TABLE 2 Study 1—t-tests for main effects of violation on trust

Violation type	Mean competence trust (baseline)	Mean competence trust (post-violation)	Competence trust (difference)	N	t-value	P-value
Competence	6.31	4.43	-1.88	216	17.73	<0.001
Integrity	6.20	4.29	-1.91	206	16.54	<0.001
Violation type	Mean integrity trust (baseline)	Mean integrity trust (post-violation)	Integrity trust (difference)	N	t-value	P-value
Competence	6.19	5.00	-1.19	216	11.03	<0.001
Integrity	6.10	2.61	-3.49	206	30.51	<0.001

t-tests of the buyer's pre-violation and post-violation trust levels. For completeness, we present the full results for both violation types and both dimensions of trust, for a combination of four tests. The results, presented in Table 2, clearly indicate that both types of supplier violation significantly and negatively impact both dimensions of buyer's trust (all at $p < 0.001$). The significant damage caused by competence violations on competence trust and integrity violations on integrity trust is as expected (although not hypothesized), and establish the face validity of the results. More interestingly, these results show a significant spillover effect of integrity violations onto competence trust, thereby providing support for H1. We also see a significant negative spillover effect of competence violations onto integrity trust, thereby providing support for H2.

To evaluate H3 and H4, we used traditional OLS regression analysis, as concerns of endogeneity with *contractual governance* and *relational governance* are addressed by our experimental manipulations in Study 1. We first assess H3, which reflects our expectation that contractual governance is better suited than relational governance to mitigate damages to the buyer's (a) integrity trust and (b) competence trust when a supplier integrity violation has occurred. Table 3 shows the Study 1 regression results for the integrity violation

treatment. Models 1a and 1b include *change in integrity trust* as the dependent variable whereas the dependent variable in Models 1c and 1d is *change in competence trust*. Models 1a and 1c contain only the control variables. Models 1b and 1d then also incorporate the governance variables (i.e., *contractual governance* and *relational governance*). Model 1b is used to evaluate the hypothesis for the damage to integrity trust (H3a) whereas Model 1d is used to evaluate the hypothesis for the damage to competence trust (H3b). These results show a non-significant effect of contractual governance to mitigate damages to the buyer's integrity trust following a supplier integrity violation ($b = 0.23$; ns). However, contractual governance does appear marginally effective at mitigating competence trust damaged in the case of an integrity violation ($b = 0.37$; $p < 0.10$). In neither case is relational governance effective at mitigating buyer trust damages due to an integrity violation by the supplier. Thus, we find marginal support for H3b, but not H3a.

Finally, we assess H4, in which we posit relational governance is better suited than contractual governance to mitigate damages to the buyer's (a) integrity trust and (b) competence trust when a supplier competence violation has occurred. As shown in Table 4, once again, two separate analyses were conducted to reflect either integrity trust or competence trust as the dependent variable.

TABLE 3 Study 1—Regression results for integrity violations

	Integrity violations			
	DV: Change in integrity trust		DV: Change in competence trust	
	Model 1a Coeff (SE)	Model 1b Coeff (SE)	Model 1c Coeff (SE)	Model 1d Coeff (SE)
Constant	4.41 (0.74)***	4.44 (0.75)***	2.24 (0.88)**	1.99 (0.89)**
Gender (1 = female)	0.10 (0.18)	0.09 (0.18)	0.01 (0.20)	0.02 (0.20)
Age	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.01 (0.01)
Switching difficulty	0.34 (0.06)***	0.34 (0.06)***	0.13 (0.07)*	0.12 (0.07)*
Integrity trust (baseline)	-1.42 (0.11)***	-1.44 (0.11)***		
Competence trust (baseline)			-0.77 (0.13)***	-0.77 (0.13)***
Contractual governance		0.23 (0.18)		0.37 (0.20)*
Relational governance		-0.13 (0.18)		0.24 (0.20)
Observations	206	206	206	206
F	64.01***	43.15***	11.77***	8.75***
R ²	0.560	0.565	0.190	0.209
Adjusted R ²	0.552	0.552	0.174	0.185
F (relative to prior)		1.19		2.38*

Note: Contractual governance and relational governance are incorporated as binary variables reflecting the manipulation of low vs. high contractual governance or relational governance, respectively.

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

TABLE 4 Study 1—Regression results for competence violations

	Competence violations			
	DV: Change in integrity trust		DV: Change in competence trust	
	Model 2a Coeff (SE)	Model 2b Coeff (SE)	Model 2c Coeff (SE)	Model 2d Coeff (SE)
Constant	1.51 (0.93)	1.54 (0.87)*	−0.71 (1.02)	−0.76 (0.97)
Gender (1 = female)	0.07 (0.19)	0.01 (0.18)	−0.05 (0.19)	−0.12 (0.18)
Age	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.02 (0.01)*
Switching difficulty	0.01 (0.07)	0.01 (0.07)	0.12 (0.07)	0.13 (0.07)*
Integrity trust (baseline)	−0.45 (0.14)***	−0.55 (0.13)***		
Competence trust (baseline)			−0.30 (0.14)**	−0.36 (0.14)***
Contractual governance		0.20 (0.18)		−0.12 (0.17)
Relational governance		1.00 (0.18)***		0.86 (0.17)***
Observations	216	216	216	216
<i>F</i>	3.04**	7.93***	3.08**	6.49***
<i>R</i> ²	0.055	0.185	0.055	0.157
Adjusted <i>R</i> ²	0.037	0.162	0.037	0.133
<i>F</i> (relative to prior)		16.79***		12.64***

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

Models 2a and 2b include *change in integrity trust* as the dependent variable whereas the dependent variable in Models 2c and 2d is *change in competence trust*. Models 2a and 2c contain only the control variables. Models 2b and 2d then also incorporate the governance variables. Model 2b is used to evaluate the hypothesis for the damage to integrity trust (H4a) whereas Model 2d is used to evaluate the hypothesis for the damage to competence trust (H4b). These results show that relational governance, but not contractual governance, is effective at mitigating damage to both the buyer's integrity ($b = 1.00$; $p < 0.01$) and competence trust ($b = 0.86$; $p < 0.01$) when a supplier competence violation has occurred. These results provide support for H4a and H4b.

4.1.4 | Discussion

In Study 1, we find that the type of supplier violation experienced (competence or integrity) as well as the governance structure (contractual or relational governance) both shape the damage to a buyer's trust due to a violation. First, as expected, we confirm that violations have a spillover effect on trust. These findings show that a violation—regardless of whether it is attributed to being integrity-based or competence-based—exhibits a negative impact on both dimensions of buyer trust in a buyer-supplier relationship. Second, we also establish that the

existing governance structure (pre-violation) shapes the impact of trust violations. Consistent with our expectations, we find that relational governance serves to mitigate the damage to both dimensions of buyer trust following a competence violation by the supplier. These findings support our rationale that when relational norms are strong, the buyer will give the supplier the benefit of the doubt with a competence-based violation. The same cannot be said of contractual governance, which was not effective at mitigating the damage to either dimension of trust following a competence violation. Alternatively, we do find that contractual governance is marginally effective at limiting the extent to which integrity violations spillover to impact the competence dimension of trust. However, neither governance structure is effective at mitigating the buyer's integrity trust damaged due to supplier integrity violations.

The results from Study 1 offer provocative insights, yet bring to light a few important questions regarding our design: (1) To what degree does the within-subjects design and repeated measurement of trust lead to demand effects that potentially bias our results?; (2) To what extent does the contrast of two treatments, without a control, present a demand effect?; and (3) Would controlling for the MTurk workers' buyer-supplier relationship management experience meaningfully alter our findings? To address these questions, we now turn to Study 2.

4.2 | Study 2

4.2.1 | Participants, design, and analysis

The experimental setup for Study 2 mirrors that of Study 1 with a few important exceptions. First, our second study employs a between-subjects design that only measures the participants' assessment of trust post-violation. By not measuring trust prior to the presentation of the violation, we can avoid potentially cueing the participants as to the intent of the research and minimize any ensuing demand effects that may bias the results. Second, unlike Study 1, Study 2 includes a control (no violation) treatment against which we can compare the effects of competence and integrity violations using two separate binary indicators, and again avoid the possibility of an underlying demand effect (the text of the no violation scenario reads: "Your supplier's recent performance has remained consistent with its past performance."). Third, Study 2 includes a new control variable, *buyer-supplier relationship experience*, reflecting the extent to which the participants have prior experience working in real buyer-supplier relationships (1 = *none*; 3 = *some*; 5 = *extensive*), and thus incorporates a potentially important control variable that was omitted in Study 1. As such, Study 2 follows a 2 (*low vs. high contractual governance*) \times 2 (*low vs. high relational governance*) \times 3 (*no vs. integrity vs. competence violation*) experimental design. Study 2 is otherwise equivalent to Study 1 in its use of US-based MTurk workers with a college degree and some post-college work experience (see Appendix S2), use of the same scenario text and manipulations, and use of the same measurement items for all variables (see Appendix S3). The final sample for Study 2 includes 658 participants after removing 56 who failed basic attention checks (Abbey & Meloy, 2017). Study 2 participants had a mean age of 37.6 years, mean professional work experience of 13.7 years, and were 58% male.

In this second study, the inclusion of a control condition allows us to incorporate two binary variables reflecting violation type (integrity and competence, respectively) in the same model. It also leads to the inclusion of four interaction terms between the two violation type variables and two governance variables (contractual and relational). Accordingly, we are able to test all hypothesized effects using two OLS regression models—one with integrity trust as the dependent variable and the other with competence trust as the dependent variable. Finally, as previously noted, Study 2 includes the additional control variable *buyer-supplier relationship experience* but does not control for pre-violation trust because it was not measured. Otherwise, Study 2 has the same control variables as Study 1. Descriptive statistics and

correlations for Study 2 are available in Appendix S4. The results for Study 2 are presented in Table 5. Model 3a retains *integrity trust* as the dependent variable and Model 3b retains *competence trust* as the dependent variable.

4.2.2 | Results and discussion

We observe that the effect of integrity violations on competence trust is significantly negative in Model 3b ($b = -2.04$; $p < 0.01$) and the effect of competence violations on integrity trust is significantly negative in Model 3a ($b = -1.51$; $p < 0.01$). These results strongly

TABLE 5 Study 2—Regression results

	DV: Integrity trust Model 3a Coeff (SE)	DV: Competence trust Model 3b Coeff (SE)
Constant	4.64 (0.27)***	5.19 (0.26)***
Gender (1 = female)	-0.08 (0.11)	0.00 (0.10)
Age	0.00 (0.00)	0.00 (0.00)
Buyer-supplier relationship experience	0.11 (0.05)**	0.07 (0.05)
Switching difficulty	0.24 (0.03)***	0.19 (0.03)***
Contractual governance (CG)	-0.05 (0.18)	0.04 (0.18)
Relational governance (RG)	0.47 (0.18)***	0.24 (0.18)
Integrity violation	-2.61 (0.22)***	-2.04 (0.21)***
Competence violation	-1.51 (0.22)***	-2.20 (0.22)***
Integrity violation \times CG	-0.27 (0.25)	-0.24 (0.25)
Integrity violation \times RG	-0.02 (0.25)	0.15 (0.25)
Competence violation \times CG	0.08 (0.25)	0.10 (0.25)
Competence violation \times RG	0.58 (0.25)**	0.60 (0.25)**
Observations	658	658
F	52.81***	36.75***
R ²	0.496	0.406
Adjusted R ²	0.486	0.395

Note: Contractual governance and relational governance are incorporated as binary variables reflecting the manipulation of low vs. high contractual or relational governance, respectively.

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

support the spillover effects expressed in H1 and H2. Neither contractual nor relational governance exhibit a significant effect on either dimension of trust when an integrity violation occurs. These results fail to support H3a and H3b. In the case of competence violations, the non-significant interaction effect with contractual governance on either competence or integrity trust, along with the significantly positive interaction effect with relational governance on both competence ($b = 0.58$; $p < 0.05$) and integrity trust ($b = 0.60$; $p < 0.05$), support H4a and H4b. It is notable that the preceding results hold irrespective of whether or not the new control variable, *buyer-supplier relationship experience*, is included in the model (please see Appendix S5 for these results).

With Study 2, we once again find evidence that the degree to which the buyer's trust is damaged with a supplier violation depends on both the nature of the violation and the structure of the existing governance system. We find evidence of a spillover effect that occurs with both types of violations; integrity violations have a discernible negative impact on competence trust and competence violations have a significant negative impact on integrity trust, a finding that is consistent across Studies 1 and 2. We also examine the influence of existing governance structures in mitigating trust damages following a violation. The results of Study 2 exhibit one point of departure from Study 1, which is with respect to the role of contractual governance in mitigating the damage to competence trust with an integrity violation. We do not find support for this expected effect in Study 2 but did find marginal support for it in Study 1.

The design of Studies 1 and 2 has the advantage of allowing us to guard against endogeneity by completely controlling the information provided to participants on the nature of the existing buyer-supplier relationship. This greatly limits the concern that unobserved elements of the relationship could have influenced the existing structure of the governance system (*contractual governance* and *relational governance*) as well as influence how buyer trust is damaged due to a supplier violation. However, the downside to this design is that participants are asked to place themselves in a purely hypothetical relationship. Thus, one may argue that buy-side professionals in real and ongoing buyer-supplier relationships may respond differently to trust violations. Given this reasonable concern, as well as to further validate the intriguing findings of our first two studies, a third study was conducted that engages procurement professionals involved in the management of actual relationships. Study 3, to which we now turn, allows us to evaluate the extent to which our findings generalize to real-world buyer-supplier relationships.

4.3 | Study 3

4.3.1 | Participants

For our third study, we recruited procurement managers at US-based manufacturing organizations to participate in an online quasi-experiment. Targeting procurement professionals allows us to capture the perspective of buy-side boundary spanners most directly involved in managing supplier relationships. Boundary spanners play an integral role in capturing, interpreting, and disseminating information about suppliers to other organizational members (Zhang et al., 2011). Thus, they are fundamentally responsible for leading the development of their organization's shared orientation toward suppliers, including trust orientations. For this reason, most prior studies of buyer-supplier trust use boundary spanners as the key informant (e.g., Johnston et al., 2004; Narayanan et al., 2015; Poppo et al., 2016). We used the professional contact database ZoomInfo.com to recruit 256 professionals to participate in the scenario-based quasi-experiment (please see Appendix S6 for additional information on ZoomInfo.com recruitment and profile of the sample). The final dataset used in the study contains 218 observations after eliminating 38 due to excessive missing data.

4.3.2 | Design and manipulations

The research design for Study 3 has one treatment (*violation*) at two levels (*competence* vs. *integrity*). We used a scenario-based role-playing quasi-experiment. Similar to previous research (Ganesan et al., 2010), study participants were asked to reflect on an actual supplier relationship they actively manage for products that were important to their firm but that could be replaced without significant disruption to their operation. They then answered a series of questions about that relationship to establish a baseline of relationship conditions, including trust and governance. Next, participants were presented with a scenario imposing a hypothetical violation caused by the supplier. The violation, randomly assigned, describes either a competence- or integrity-based violation, consistent with the operationalization of these measures as previously described (the full text of these scenarios are provided in Appendix S7). Finally, the participants were asked to report again on the measures of trust in consideration of the supplier violation. Importantly, this research design using a random assignment of study participants to the two treatments allows us to attenuate the potential causality between the trust violation and previously established governance structures in

our model (Agarwal et al., 2010; Reeb et al., 2012). However, due to the non-random nature of the governance conditions of these actual buyer–supplier relationships, we designate this a quasi-experimental design. The varied nature of the design used in this study, as compared with Studies 1 and 2, helps us to avoid mono-method bias and enhances generalizability of the research (Vargas et al., 2017). Results of realism checks and manipulation checks, all successful, are also available in Appendix S7.

4.3.3 | Measurement

The dependent variables in this study are the same as those used for Study 1: *change in competence trust* and *change in integrity trust*, while controlling for baseline trust. The measures for the existing governance structure are based on the same literature as was used to craft the scenario manipulations for governance in Studies 1 and 2. Specifically, *contractual governance* is a multi-item scale combining items from prior studies (Jap & Ganesan, 2000; Jayaraman et al., 2013; Li et al., 2010) with a new item developed for this study. The measurement for *relational governance* is based on previously validated measures reflecting the relational norms of flexibility, information exchange, and solidarity (Heide & John, 1992). Preliminary analysis suggested an extremely high correlation among the measures for these respective norms (all $p < 0.0001$). Thus, we combine them into a single *relational governance* factor.

In addition to the variables used to test the hypotheses, several control variables are included to isolate their potentially confounding influence. First, to capture the relational history of the buyer and supplier firms as well as the span of time over which the individual boundary spanner has been involved in managing the relationship, we include the control variables of *longevity of relationship* and *longevity of boundary spanner involvement* (both measured in years). The extent to which the buying firm is reliant on the supplier is assessed by including a *percent spend* variable which measures the percentage of the buyer's total spending (0% to 100%) in the relevant sourcing category that is with the supplier. The next two control variables are the *buying firm size* (annual revenues in US\$) and *contract size* (annualized in US\$). Collectively, these control variables allow us to capture relevant features of the baseline buyer–supplier relationship which may influence the manner by which supplier violations impact buyer trust. The final three control variables are included to account for the degree to which supplier trust violations may or may not be anticipated by the buying firm. A three-item measure of *switching difficulty* controls for the degree to which the buyer perceives it is locked-in

to its relationship with the supplier and therefore vulnerable to violations. *Frequency of similar violations (same supplier)* and *frequency of similar violations (other suppliers)* are measured with the following questions: In the past 2 years, how often have you experienced a situation similar to the one described in the scenario with this particular supplier (other suppliers)? (1 = *never*; 3 = *sometimes*; 5 = *all the time*). Again, these factors contribute to the degree to which the buying firm would anticipate (or not) the violation.

In Appendix S8, we provide the descriptive statistics and correlations among the variables used in the analysis. We also show validity of the multi-item constructs with a confirmatory factor analysis (CFA) in Mplus. All constructs exhibit strong overall model fit, validity (convergent and discriminant), and reliability. Appendix S8 also addresses our test for common methods bias, from which we did not observe evidence of a significant methods bias.

4.3.4 | Analysis

As in Study 1, we assess our first two hypotheses regarding the spillover effect of supplier violations by conducting two-sample t-tests of the buyer's pre-violation and post-violation trust levels. For completeness, we again conduct the analysis for both violation types and both types of trust, for a combination of four tests.

Unlike Study 1, in this third study we situate the experiment within actual buyer–supplier relationships for which the participants are responsible. Although this makes our findings more generalizable to real-life managerial situations, we do not have the ability to experimentally control pre-existing relationship conditions. This introduces an additional threat to the validity of our results—the potential endogeneity of contractual and relational governance (*contractual governance* and *relational governance*). That is, there are potentially omitted factors that influenced the nature of the governance system in place and also influence the extent to which the buyer's trust is damaged as a result of a supplier violation. To the degree that this is true, results from a traditional OLS analysis could be biased. To guard against this risk, we formally test whether *contractual governance* and *relational governance* should be treated as endogenous or exogenous variables in our analysis of the third and fourth hypotheses with Study 3. If the null hypothesis that these variables are exogenous is not rejected, then the use of traditional OLS regression is a valid, even preferred, approach (Baum et al., 2003; Kennedy, 2003; Wooldridge, 2012). On the other hand, if the null hypothesis of exogeneity is rejected, then an econometric

approach which accounts for the endogeneity of *contractual governance* and *relational governance* is advised.

To assess the potential endogeneity of *contractual governance* and *relational governance*, we conducted a two-stage least squares (2sls) instrumental variables analysis. Full discussion of our instrumental variables and results of the 2sls analysis are provided in Appendix S9. Collectively, the results of this analysis indicate that treating *contractual governance* and *relational governance* as exogenous rather than endogenous is valid, and that traditional OLS should be used as it is a more efficient estimator (Baum et al., 2003; Kennedy, 2003; Wooldridge, 2012). Therefore, we test our third and fourth hypotheses in Study 3 using two OLS hierarchical regression analyses, one for each dimension of change in buyer trust as the dependent variable. In each analysis, we enter variables into our model in sequence. First, we include only the control variables and the baseline measure of trust (either competence or integrity) prior to the violation. Next, we add the indicators for the two governance structures (*contractual governance* and *relational governance*). With a maximum variance inflation factor (VIF) of 2.99 across all models, collinearity is not a significant issue in our analysis (Marquardt, 1970).

4.3.5 | Results

The results for the first two hypotheses are shown in Table 6. The findings of Study 3 support the notion of a spillover effect occurring with both types of supplier violation. In support of H1, we find that integrity violations have a significant negative impact on the buyer's competence trust (change in competence trust = -1.13 ; $p < 0.001$). In support of H2, we also find evidence that competence violations have a significant negative effect on integrity trust (change in integrity trust = -0.48 ; $p < 0.001$).

Tables 7 and 8 show the Study 3 regression results for supplier integrity violations (H3) and competence violations (H4), respectively. In Table 7, Model 4b is used to evaluate our hypothesis that contractual governance is better suited than relational governance to mitigate damage to the buyer's integrity trust in the case of an integrity violation (H3a). Model 4d is used to evaluate the same expectation for the damage to competence trust in the case of an integrity violation (H3b). These results show that when an integrity violation has occurred, contractual governance significantly mitigates the damage to both integrity trust ($b = 0.29$; $p < 0.05$) and competence trust ($b = 0.35$; $p < 0.01$). In contrast, the mitigating effect of relational governance in the case of an integrity violation is non-significant for both dimensions of trust. These results offer support to H3a and H3b.

In Table 8, Model 5b is used to evaluate our hypothesis that relational governance is better suited than contractual governance to mitigate damage to the buyer's integrity trust in the case of a competence violation by the supplier (H4a). Model 5d is used to evaluate the analogous expectation for competence trust in the case of a competence violation (H4b). These results indicate that relational governance significantly mitigates the damage to competence trust ($b = 0.38$; $p < 0.05$) but not integrity trust ($b = 0.16$; ns) due to a competence violation. Contractual governance is not significantly associated with either dimension of the buyer's trust. These results support H4b but not H4a.

4.3.6 | Discussion

Study 3 once again provides strong support for our hypothesized negative effects of integrity violations on competence trust and competence violations on integrity trust. When combined with equivalent findings from Studies 1 and 2, we conclude that there is compelling evidence in support of spillover effects in the case of both

TABLE 6 Study 3—t-tests for main effects of violations on trust

Violation type	Mean competence trust (baseline)	Mean competence trust (post-violation)	Competence trust (difference)	N	t-value	P-value
Competence	5.64	4.97	-0.67	112	4.52	<0.001
Integrity	5.57	4.43	-1.13	106	7.34	<0.001
Violation type	Mean integrity trust (baseline)	Mean integrity trust (post-violation)	Integrity trust (difference)	N	t-value	P-value
Competence	5.28	4.80	-0.48	112	3.14	<0.001
Integrity	5.40	3.38	-2.02	106	11.04	<0.001

Note: Contractual governance and relational governance are incorporated as binary variables reflecting the manipulation of low vs. high contractual governance or relational governance, respectively.

TABLE 7 Study 3—Regression results for integrity violations

	Integrity violations			
	DV: Change in integrity trust		DV: Change in competence trust	
	Model 4a Coeff (SE)	Model 4b Coeff (SE)	Model 4c Coeff (SE)	Model 4d Coeff (SE)
Constant	−0.87 (1.10)	−2.00 (1.37)	−0.31 (0.94)	−0.34 (1.10)
Longevity of relationship	0.01 (0.05)	0.01 (0.05)	0.04 (0.05)	0.05 (0.05)
Longevity of boundary spanner involvement	−0.02 (0.04)	−0.02 (0.04)	−0.04 (0.04)	−0.04 (0.04)
Percent spend	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Buying firm size	−0.18 (0.10)*	−0.22 (0.10)**	−0.05 (0.09)	−0.10 (0.09)
Contract size	0.11 (0.10)	0.13 (0.10)	0.07 (0.09)	0.09 (0.08)
Switching difficulty	0.30 (0.13)**	0.30 (0.13)**	0.28 (0.11)**	0.23 (0.11)**
Frequency of similar violations (same supplier)	0.55 (0.21)***	0.54 (0.20)***	0.59 (0.18)***	0.54 (0.17)***
Frequency of similar violations (other suppliers)	0.80 (0.19)***	0.80 (0.19)***	0.49 (0.17)***	0.45 (0.16)***
Integrity trust (baseline)	−0.58 (0.13)	−0.37 (0.20)*		
Competence trust (baseline)			−0.54 (0.14)***	−0.51 (0.19)***
Contractual governance		0.29 (0.13)**		0.35 (0.12)***
Relational governance		−0.27 (0.21)		−0.09 (0.16)
Observations	106	106	106	106
<i>F</i>	9.95***	9.07***	7.72***	7.78***
<i>R</i> ²	0.483	0.515	0.420	0.477
Adjusted <i>R</i> ²	0.434	0.458	0.365	0.416
<i>F</i> (relative to prior)		3.15**		5.11***

Note: Contractual governance and relational governance are incorporated as binary variables reflecting the manipulation of low vs. high contractual governance or relational governance, respectively.

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

types of violations. That is to say, in the context of buyer–supplier relationships, the damage of either type of violation is not constrained to an individual dimension of trust but, rather, broadly impacts both competence and integrity trust. The finding for the spillover effect of competence violations onto integrity trust is a notable departure from previous literature supporting the notion of a bounded effect of competence violations. We discuss this further in the General Discussion below.

Our investigations surrounding the ability of governance structures to mitigate trust damages experienced by a buyer following a supplier violation revealed some interesting outcomes. In Studies 1 and 2, both using MTurk workers as participants, we fail to find support for the expectation that contractual governance is better suited to protect integrity trust in the aftermath of an integrity violation. Interestingly, Study 3, which uses procurement professionals as participants, was the only one to find support for this hypothesized effect. It is plausible that these differences might be explained by the fact that Study 1 and 2 participants (i.e., MTurk workers) on

average have less experience with buyer–supplier relationships than do the professionals in Study 3, and therefore do not fully recognize the utility of contractual governance in these relationships.

On the contrary, there was considerable consistency concerning the expectation that relational governance better protects against trust damages following a competence violation. The results of Studies 1 and 2 support the expectation that relational governance better protects against damage to both dimensions of trust due to a competence violation. The results of Study 3 also supported this expectation when it comes to competence trust, and supported the hypothesis related to integrity trust when using alternative specifications as outlined in the robustness checks described in the following section.

Overall, given the differences in the pools of participants as well as the experimental designs across the three studies, the consistency of our findings is quite noteworthy. Collectively, the findings from the three studies meaningfully advance the buyer–supplier trust literature by deepening our understanding of how decisions made

TABLE 8 Study 3—Regression results for competence violations

	Competence violations			
	DV: Change in integrity trust		DV: Change in competence trust	
	Model 5a Coeff (SE)	Model 5b Coeff (SE)	Model 5c Coeff (SE)	Model 5d Coeff (SE)
Constant	−0.09 (0.76)	0.48 (0.88)	−1.10 (1.09)	0.39 (1.25)
Longevity of relationship	−0.02 (0.03)	−0.03 (0.03)	0.00 (0.04)	−0.01 (0.04)
Longevity of boundary spanner involvement	−0.02 (0.03)	−0.02 (0.03)	−0.02 (0.04)	−0.02 (0.04)
Percent spend	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Buying firm size	0.01 (0.08)	0.02 (0.08)	−0.04 (0.10)	−0.02 (0.10)
Contract size	0.01 (0.08)	0.00 (0.08)	0.00 (0.09)	−0.01 (0.09)
Switching difficulty	0.09 (0.09)	0.10 (0.09)	0.07 (0.11)	0.07 (0.11)
Frequency of similar violations (same supplier)	−0.05 (0.13)	−0.06 (0.14)	0.10 (0.16)	0.04 (0.16)
Frequency of similar violations (other suppliers)	0.23 (0.15)	0.23 (0.15)	0.22 (0.18)	0.24 (0.18)
Integrity trust (baseline)	−0.13 (0.09)	−0.21 (0.12)*		
Competence trust (baseline)			−0.04 (0.14)	−0.26 (0.17)
Contractual governance		−0.09 (0.09)		−0.06 (0.11)
Relational governance		0.16 (0.14)		0.38 (0.16)**
Observations	112	112	112	112
<i>F</i>	1.07	1.14	0.60	1.12
<i>R</i> ²	0.087	0.112	0.051	0.109
Adjusted <i>R</i> ²	0.006	0.014	−0.033	0.011
<i>F</i> (relative to prior)		1.41		3.29**

Note: Contractual governance and relational governance are incorporated as binary variables reflecting the manipulation of low vs. high contractual governance or relational governance, respectively.

p* < 0.10. *p* < 0.05. ****p* < 0.01.

with respect to the structure of pre-existing governance systems can significantly influence the aftermath of trust violations.

4.4 | Robustness checks

To further evaluate the robustness of our findings, three additional analyses were conducted. The complete details and results of each of these robustness checks are provided in Appendix S10. First, in testing H1 and H2 (i.e., the spillover effects) in Studies 1 and 3, we conducted the analyses using two-sample t-tests. Although parsimonious and easy to interpret, this approach does not allow us to control for other factors that may influence the change in buyer's trust. Thus, to validate our findings associated with H1 and H2 in those studies, we performed an alternative two-step analysis, which allows us to control for other potentially relevant factors. These results of this analysis, detailed in Appendix S10,

corroborate the spillover effects observed in our main analyses for Studies 1 and 3.

Second, our correlation tables demonstrate that the constructs of *competence trust* and *integrity trust* are highly correlated. Through confirmatory factor analysis (shown in Appendix S8), sufficient evidence was found for the discriminant validity of these constructs. Nonetheless, to strengthen our confidence that this inter-factor correlation among our two dependent variables is not biasing our results, we conducted all three studies again using seemingly unrelated regression (SUREG) instead of traditional OLS. This method estimates the models by explicitly accounting for the correlation between change in competence and change in integrity trust (Zellner, 1962). These supplementary analyses produce results (shown in Appendix S10) consistent with our main analyses, with one exception. With the Study 3 data using the SUREG specification, H4a—the influence of relational governance on change in the buyer's integrity trust when the supplier violation is competence-based—

is supported at $p < 0.01$. This result is consistent with the findings in Studies 1 and 2 for H4a.

Third, in Studies 1 and 2, abbreviated versions of the competence trust and integrity trust measurement scales were used because some of the items would have been difficult for the participants to answer given the limited information about the relationship provided in the vignettes. However, in Study 3, the participants were responding to the trust questions with respect to an actual supplier relationship with which they are very familiar. For this reason, in Study 3, the complete measurement scales were used to capture competence and integrity trust to be in line with prior studies. To gain a more direct comparison of the findings between the three studies, the Study 3 analysis was conducted again using the abbreviated versions of the competence and integrity trust measurement scales. Once again, the results (shown in Appendix S10) are largely consistent with those of the main analysis except that H4a is now marginally supported at $p < 0.10$. The Study 3 results associated with these latter two supplemental tests are aligned with the findings in Studies 1 and 2 for the influence of relational governance on the change in the buyer's integrity trust in the aftermath of a supplier competence violation (i.e., H4a).

5 | GENERAL DISCUSSION AND CONCLUSIONS

5.1 | Theoretical contributions

Our results make several theoretical contributions to the literature on buyer-supplier trust violations. Building on prior research that draws a distinction between different dimensions of trust, our study contributes to a finer theoretical understanding of damages to a buyer's competence-based and integrity-based trust following a supplier violation. Prior work by Sitkin and Roth (1993) observes the potential for values-based trust violations, which integrity violations exemplify, to spillover to other facets of a relationship. However, their discussion of the generalization of values-based violations concentrates on the impact across different sets of values but does not address the degree to which values-based issues extend to assessments of competence. Similarly, although Dirks et al. (2009) also express expectations regarding the broader impact of integrity issues, their logic speaks to the degree to which dishonesty applies across contexts (e.g., cheating at golf and cheating at business). Once again, they do not tackle how issues of integrity lead to reassessments of competence as well (e.g., cheating at golf and being perceived as unskilled at golf). Thus, we

extend discussion on the impact of integrity violations by theorizing and empirically demonstrating how supplier violations of integrity spillover to damage a buyer's competence trust as well.

Our study of the spillover effects of supplier competence violations in buyer-supplier relationships revealed an important theoretical boundary condition. Previous literature, rooted in the concept of hierarchically restrictive schema, has promoted the bounded effect of competence violations (i.e., impacting solely competence trust) (Connelly et al., 2012; Dirks et al., 2009); however, that argumentation was developed within the context of inter-personal level relationships. Ample research within the supply chain domain has shown that supply disruptions are meaningful events for the buyer, constituting substantive risks to the buyer's performance and reputation (Hendricks et al., 2009; Hendricks & Singhal, 2003, 2005a, 2005b). The potential severity of operational and financial consequences for the buyer make these events highly salient (Craighead et al., 2007) and even emotional (Polyviou et al., 2018), which makes it more difficult to constrain their fallout to a single facet of the relationship. Indeed, our findings complement this stream of research by demonstrating that in a buyer-supplier context, supplier competence violations appear to have breadth of impact, damaging both the buyer's competence as well as integrity trust in that supplier.

Although not specifically hypothesized, our discussion also alludes to a difference in strength of impact between integrity violations and competence violations. In a post-hoc comparison of the effects found and discussed above, we note that consistently integrity violations impart a more significant spillover effect on buyer-supplier trust levels than do competence violations (Study 1: $\chi^2 = 20.76$, $p < 0.001$; Study 2: $\chi^2 = 3.86$; $p = 0.049$; Study 3: $\chi^2 = 9.08$; $p = 0.003$). Thus, although both violation types damage trust in a buyer-supplier context, it is not necessarily surprising to note that integrity violations are generally more damaging than competence violations.

Taken together, our findings regarding a distinct spillover effect where trust violations are concerned complement recent findings of spillovers in other contexts, such as consumers' quality perceptions (Nichols et al., 2019), knowledge spillovers acquired through managers' observational learning (Hora & Klassen, 2013), and the spillover effects associated with information leakages in a supply network (Ried et al., 2020). Our investigation furthers our understanding of spillover effects in buyer-supplier relationships as it pertains to the breadth of impact of trust violations in buyer-supplier domains (Kaufmann et al., 2018; Ta et al., 2018). Without this

clear understanding, efforts at repair and rebuilding may be unsuccessful and potentially lead to supplier switching (Mir et al., 2017) or relationship dissolution (Chen et al., 2019; Wang et al., 2014).

Additionally, we show that the governance structures adopted by firms involved in a buyer–supplier exchange have distinct impacts on the buyer’s trust assessments following a supplier violation. Previous research theorizes on the role of governance structures in minimizing the occurrence of opportunism or violations in buyer–supplier contexts (Dyer & Singh, 1998; Handley & Angst, 2015; Liu et al., 2009; Wang et al., 2016), but our research extends this theorizing post-violation. A wealth of prior literature has extolled the values of relational norms, in particular how these characteristics (i.e., information sharing, flexibility, and solidarity) lead to an environment supportive of reconciliation (Heide & John, 1992; Lusch & Brown, 1996; Tangpong et al., 2010). The premise in this literature is that relational norms establish guidelines for and bounds to behavior. Although sufficient evidence indeed points to the benefits achieved under relational governance, a burgeoning stream of literature suggests a potential downside to norms as a solitary governance structure (Anderson & Jap, 2005; Poppo, Zhou, & Ryu, 2008; Villena et al., 2011). Our findings complement and extend both streams of literature. On the one hand, our work illustrates a key strength of relational norms is to buffer against trust damages experienced by a buyer resulting from supplier competence violations. Yet, buyer trust is unaffected by a relational governance structure when integrity violations occur. This finding is consistent with existing studies suggesting a moderated approach to relational governance, as it is not ubiquitously effective in all circumstances. Our work fits into this stream of research suggesting a more tailored approach to relational governance; specifically, our study suggests a contingency effect. Our findings are indicative of an inherent ambivalence of relational governance, which can prove effective or ineffective as a function of the type of violation. We therefore complement prior research by highlighting an important trade-off faced by buyers when investing time and resources in the development of relational norms with their supplier.

Furthermore, in contrast with most prior research which has centered on inter-personal relationships, our focus on buyer–supplier relationships allows us to evaluate the effectiveness of contractual governance in mitigating trust degradation experienced by a buyer following either a supplier integrity or competence violation. Our findings indicate that contractual governance is not always adequate in mitigating trust damages following a violation. Specifically, we find some evidence that

contractual governance is perhaps better suited for dealing with integrity violations than with competence violations. This stands in contrast to a stream of work arguing that formal, legalistic structures are ill-suited for reconciling values-based (i.e., integrity) violations and are more appropriate for context-specific issues of reliability (Sitkin & Roth, 1993; Zucker, 1977). We believe that this finding highlights the contrast between inter-personal and inter-organizational (i.e., buyer–supplier) trust violations as depicted by Zaheer et al. (1998), and reiterates the importance of treating inter-organizational trust as a distinct construct (e.g., Gulati & Nickerson, 2008; Johnston et al., 2004; Wagner et al., 2011; Zhang et al., 2011). First, contractual structures are much less instrumental in governing inter-personal relationships (Lumineau et al., 2015). Second, the context studied by Sitkin and Roth (1993) included salient factors that are not relevant to our context of buyer–supplier relationships; in their study of HIV-infected employees, fear of personal harm was a central factor influencing the insufficiency and inappropriateness of legalistic structures. Personal harm is not a key consideration in our context. In sum, we believe that the differing findings obtained in our study are the result of a completely different empirical context where contracts traditionally play a more instrumental role in governing the relationship. This suggests that the role of legalistic (contractual) structures in shaping the aftermath of a trust violation is context-specific. Our findings suggest an important contingency effect that opens the way for future research to more fully examine additional contingencies.

5.2 | Managerial implications

The results of our investigation have managerial relevancy, as well. We show that when trust violations occur, the fallout has a breadth of impact across multiple trust dimensions. Either type of violation prompts the buyer to reassess trust in the supplier along both integrity and competence dimensions, but this may not necessarily lead to the best utilization of scarce organizational resources. Buyers should be cognizant of the full range of their judgments following a violation, and whether they are appropriate for the violation experienced. From this perspective, if buyers can better understand the true nature of the trust violation, then they can more quickly and efficiently devote resources to address the specific issue at hand, and avoid wasting time and resources on potentially irrelevant issues.

Suppliers, on the other hand, will want to be careful not to limit their remediation efforts to a single type of trust. From this perspective, pursuing remediation efforts

aimed at preserving both dimensions of trust may be necessary to retain the relationship. Remedial actions taken to repair competence trust must restore the buyer's confidence in the supplier's skills, knowledge, and ability. For example, the supplier can commit to competence-enhancing investments such as training, recruitment of knowledgeable professionals, and process reengineering. Additionally, the supplier may stress the transient nature of the situational factors that gave rise to the violation, and propose structural mechanisms that will alter the situational context in which the violation occurred (Dirks et al., 2011; Gillespie & Dietz, 2009). Likewise, supplier actions aimed at repairing integrity trust must restore the buyer's confidence that the supplier's values and principles are congruent with the buyer's. For instance, the supplier may propose a joint, bilateral problem solving process whereby the firms' boundary spanners can socialize in a manner that reinforces shared values and principles (Gulati & Sych, 2007; Heide & John, 1992; Li et al., 2010). Further, the supplier can commit to making relationship-specific investments to signal repentance for the violation and a willingness to be vulnerable in the relationship (Gillespie & Dietz, 2009). Given the spillover effects observed in this study, it is plausible that remedial actions focused on restoring one trust dimension would likewise spillover to repair to some degree the other trust dimension as well. This would be an interesting avenue for future research.

Finally, we show that relational governance is not a panacea in buyer-supplier relationships, in that it proves largely ineffective when integrity violations are concerned. However, by developing relational norms, firms are better positioned to resolve issues surrounding knowledge gaps and/or skill deficiencies. Further, effort spent developing and utilizing comprehensive contracts generally has good payoff in terms of preserving trust, most effectively when integrity violations occur. Specifically, developing and leveraging contractual provisions delineating violation resolution procedures aids in establishing confidence in the process so that integrity issues are perceived as less inflammatory and more readily resolved. When considered in combination with the extant literature on contractual and relational governance, our findings indicate that managers must deal with nuanced trade-offs in designing an effective governance system.

5.3 | Limitations and directions for future research

Although this study has important theoretical and managerial implications, our results should be interpreted in

light of the study's limitations. First, in order to control the type of supplier violation and minimize concerns of endogeneity between the governance structure and violation experienced, we employed scenario-based experiments. Although this methodology has its strengths, an inherent trade-off is the study of hypothetical violations as opposed to actual violations that occurred in practice. Future research could extend our work by using case studies or dyadic surveys to examine actual supplier violations, although such endeavors would face challenges in terms of data collection and potential social desirability bias. Additionally, studies using archival data sources, such as actual contractual data, could prove beneficial in avoiding concerns regarding perceptual biases inherent with primary data sources. Second, in this study we focused on the damage to buyer trust as a result of a supplier violation, but future studies could consider more tangible organizational responses such as a buyer's supplier switching intentions or relationship continuation intentions as a complement to our study. Future research should also evaluate different repair mechanisms and their ability to ameliorate damages across such diverse organizational responses. Furthermore, we controlled for the severity of damages in this research, but other research has demonstrated violations of different severity have varying impact (Eckerd et al., 2013, 2016; Mir et al., 2017). It may prove useful to further our evaluation of governance mechanism effectiveness in mitigating damages across an array of violation severities. Similarly, our studies control for violation frequency, with the presentation of a single violation in the vignette and a control variable for frequency included in Study 3. The frequency of violation can be further unpacked in future research. Third, although our studies were limited to participants in the United States, previous research has demonstrated (1) differences in trust perceptions across national cultures following breach (Eckerd et al., 2016), and (2) a differential effectiveness of contractual governance based on the institutional environment (Bai et al., 2016; Cao et al., 2018; Handley & Angst, 2015; Shou et al., 2016). Studies conducted in other cultural environments may lead to different conclusions. Finally, previous research suggests that expertise likely matters for the design and use of contracts (Argyres & Mayer, 2007). Our Studies 1 and 2 results show a potential underweighting of the value of contractual governance in response to supplier integrity violations by the MTurk sample. MTurk participants also showed more consistent confidence than did the procurement professionals in Study 3 in the ability of relational governance to combat supplier competence violations. Further research is warranted to better understand the role of experience in all of its forms (e.g., in years, professional

background, and formal education) in buyer–supplier relationship management.

We also recognize that the viewpoint we have adopted in this paper is that in the face of supplier violations, the goal is to mitigate damages to the buyer's trust; this sentiment is likely true of the transgressor (i.e., the supplier in our research) but is not necessarily the case for the buyer. An alternative interpretation of the results is to identify structures that potentially *mask* the impact of violations on trust, a perspective that may be important for the buyers in our study. From this standpoint, a decrease in trust is a perfectly rational and reasonable response to a supplier violation, particularly where issues of integrity are concerned. For buyers, understanding the linkages between governance structures and violations can be critical to protecting their firm's interests.

The goal of our study was to provide insights into the damaging effects of supplier trust violations on different dimensions of a buyer's trust in that supplier, and how pre-existing relational and contractual governance structures might mitigate damages to trust in buyer–supplier relationships. Our results offer compelling evidence as to the conditional and nuanced effectiveness of these two governance structures, and provide fresh insight to the buyer–supplier trust violation literature. We anticipate that these findings will inform future research in the area.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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