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Cite Article

SALIENT EXPECTATIONS? INCONGRUENCE ACROSS CAPABILITY AND INTEGRITY SIGNALS AND INVESTOR REACTIONS TO ORGANIZATIONAL MISCONDUCT

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Research in signaling theory has recently begun to explore how audiences process signal sets and the incongruence across the signals within. However, prior studies have assumed homogenous compositions of signal sets, and thus unidimensional signal incongruence, although social evaluations tend to involve simultaneous processing of different dimensions. In this study, we examine audiences' responses to the interdimensional incongruence between capability and integrity signals, particularly by focusing on how the salience of positive capability signals aggravates investor reactions to organizational misconduct, a negative integrity signal. Using irregular financial restatements as the negative integrity signals and prior alliance announcements as the positive capability signals, we find that investors react more negatively to restatements by firms whose alliance announcements are more salient—that is, the firms that announce more frequently and firms that create more positive expectations from those announcements. We also find that firm size and level of diversification weaken these negative effects. We contribute to research on signaling theory, social evaluations, organizational misconduct, and alliances.

And be these juggling fiends no more believed,
That palter with us in a double sense,
That keep the word of promise to our ear,
And break it to our hope.
—William Shakespeare (Macbeth, 5.8)

Signaling theory has generated invaluable insights into how audiences evaluate firms under uncertainty (Connelly, Certo, Ireland, & Reutzel, 2011; Gomulya & Mishina, 2017; Spence, 1973; Stiglitz, 2000). Recently, scholars have begun to explore how multiple signals are interpreted simultaneously in "signal sets," or "the collection of signals used for interpretation" (Drover, Wood, & Corbett, 2018: 218; Plummer, Allison, & Connelly, 2016; Stern, Dukerich, & Zajac, 2014; Vanacker, Forbes, Knockaert, & Manigart, 2019; Vergne, Wernicke, & Brenner, 2018). When audiences receive multiple signals from a sender, congruence enables the corroboration of signaled content, thereby amplifying the signals' effects (Plummer et al., 2016; Stern et al., 2014). Incongruent signals, in contrast, complicate signal processing by counterposing incompatible information (Zhao & Zhou, 2011), and create ambiguity by allowing multiple viable interpretations of the signals (Gioia & Chittipeddi, 1991).

However, prior studies on signal incongruence have implicitly assumed that the incongruence arises only among signals of the same evaluative dimension (i.e., "intradimensional" incongruence) (Gomulya, Jin, Lee, & Pollock, 2019; Lungeanu, Paruchuri, & Tsai, 2018; Rhee & Haunschild, 2006; Vergne et al., 2018; Zhao & Zhou, 2011). For example, a firm's product failure becomes incongruent with the firm's reputation for quality along the firm's capability dimension (Rhee & Haunschild, 2006). Likewise, a firm's CSR activities and CEO overcompensation introduce ambiguity by

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counterposing incompatible information (i.e., altruism and greed) about the firm's character (Vergne et al., 2018).

Insights from the social evaluations literature have suggested that social actors tend to group information based on their evaluative goals (Bitektine, 2011; Durand & Paolella, 2013; Park & Rogan, 2019). Thus, audiences could engage in a more holistic evaluation of signals from a firm when necessary, even if the signals are along different dimensions (Sen & Bhattacharya, 2001; Turban & Greening, 1996; Wang & Qian, 2011). Indeed, research in social psychology and management has long argued and found that *capability* (the ability to perform) and *integrity* (adherence to accepted ethical, regulatory and normative principles) are the fundamental dimensions of an actor's overall impression formation (Connelly, Ketchen, Gangloff, & Shook, 2016; Fiske, Cuddy, & Glick, 2007; Mishina, Block, & Mannor, 2012; Park & Rogan, 2019; Rosenberg, Nelson, & Vivekananthan, 1968; Stellar & Willer, 2018; Wojciszke, Bazinska, & Jaworski, 1998). These findings imply that signal incongruence may arise not only along the same dimension but also across different evaluative dimensions.

Thus, our goal is to challenge the implicit assumption that incongruence occurs only within a dimension, and address the inadequacies of the current literature on signal sets (Locke & Golden-Biddle, 1997). In so doing, we answer calls in signaling theory research to delve deeper into signal sets (e.g., Connelly et al., 2016; Drover et al., 2018), and from the social evaluations literature to uncover the interplay between capability and integrity dimensions in social evaluations (Mishina et al., 2012; Stellar & Willer, 2018).

When signals along different dimensions diverge in their valence—for instance, one cue signals a firm's questionable integrity while another cue signals its superior capabilities—audiences perceive "interdimensional" incongruence and attempt to resolve it (Drover et al., 2018; Durand & Paolella, 2013). The question is whether audiences process interdimensional incongruence akin to intradimensional incongruence. Whereas intradimensional incongruence causes ambiguity for audiences, the primacy of integrity signals implies that audiences process interdimensional incongruence differently. Prior research has shown that integrity aspects are more fundamental and have higher diagnosticity than do capability aspects (Beckert, 2006; Jensen, 2006; Stellar & Willer, 2018; Wojciszke et al., 1998). Accordingly, we argue that audiences resolve the incongruence between salient positive capability signals and negative integrity signals by extending their negative reaction to the integrity signals to the processing of the capability signals.

To elaborate, the primacy of integrity judgments imparts significant salience to integrity failures as signals (Gomulya & Mishina, 2017). Without salient positive capability signals, the negative integrity signal will be the only salient signal and thus, interdimensional incongruence will not be created. However, when the positive capability signals are salient, they become incongruent with the negative integrity signal and their level of salience determines the extent of the incongruence created because more salient signals are more readily recalled and more likely to be included in audiences' signal processing set (Drover et al., 2018). In other words, the magnitude of an audience's reaction to a negative integrity signal is shaped not only by the integrity signal itself but by the level of positive capability signals' salience.

In this study, we consider a firm's alliance announcements as the positive capability signals (Anand & Khanna, 2000; Das, Sen, & Sengupta, 1998; Woolridge & Snow, 1990) that become incongruent with and drive investor reactions to the revelation of irregular financial restatements, a major violation of accounting norms that raises suspicions about firms' integrity (Arthaud-Day, Certo, Dalton, & Dalton, 2006; Gomulya & Mishina, 2017; Harris & Bromiley, 2007; Palmrose, Richardson, & Scholz, 2004). Alliance announcements are a form of positive capability signal because they incur predominantly positive reactions from audiences such as investors (Das et al., 1998; Woolridge & Snow, 1990). We propose that interdimensional incongruence for investors becomes greater to the extent that alliance announcements are salient at the time of an irregular financial restatement, aggravating investors' reactions to the restatement. Because the salience of a signal is determined by its frequency and extremity (Hawkins & Hoch, 1992; Taylor & Fiske, 1975; Tversky & Kahneman, 1973), we specifically examine how the frequency and extremity of alliance announcements amplify investors' negative reactions. We further consider how a firm's size and diversification attenuate the effect of signal salience because these firm characteristics determine the effectiveness of alliance announcements as capability signals (Carter, 2006; Fombrun & Shanley, 1990).

We test our theory based on irregular financial restatements issued during 2000–2014 by all publicly traded firms in the (a) chemical and pharmaceutical and (b) software industries, where alliances are critical for performance and growth (Lavie &

Miller, 2008; Paruchuri, 2010; Powell, Koput, & Smith-Doerr, 1996). Our findings show that investors react more negatively to restatements by firms with more salient alliance announcements, and that the effect is weaker for large or diversified firms.

Our findings contribute to the emergent research stream on signal incongruence (Drover et al., 2018; Vergne et al., 2018) by identifying the implicit assumption of intradimensional incongruence and expanding the literature by relaxing this assumption (Locke & Golden-Biddle, 1997). In so doing, we theorize a distinct way in which interdimensional incongruence is resolved. We also contribute to the social evaluations literature by theorizing the relationship between integrity judgments and capability judgments, both of which have been treated as independent or have been studied independently, despite the prominence of both types of judgments in social evaluations (Mishina et al., 2012; Stellar & Willer, 2018). Finally, we extend the alliance literature, which has exclusively focused on positive reactions to alliance announcements, by theorizing the conditions under which the announcements engender negative reactions.

AUDIENCE REACTION TO INTERDIMENSIONAL SIGNAL INCONGRUENCE

Signal Sets and Signal Incongruence

The *raison d'être* of market signals is the presence of information asymmetry between actors (Connelly et al., 2011; Spence, 1973). When lacking adequate information to assess the true value of an object, actors attend to observable attributes or actions of the object to alleviate uncertainty (Spence, 1973; Stiglitz, 2000; for a review, see Connelly et al., 2011). However, because audiences attend to a wide variety of characteristics and behaviors as signals—be they deliberately sent or unintentionally emitted—research in this area has recently begun to explore the possibility that audiences construct signal sets to comprehensively interpret multiple signals from a signaler (Drover et al., 2018; Stern et al., 2014; Vergne et al., 2018). For instance, when consumers assess a wine, they rely on various indicators (e.g., expert tasting scores, label designations, and the winery's track record) to infer quality (Zhao & Zhou, 2011). Likewise, a high-tech firm infers the capabilities of potential alliance partners based on founders' academic prestige, scientific publication counts, and citation rates (Stern et al., 2014).

When considering signal sets, consistency across signals is key to the effectiveness of the signals (Connelly et al., 2011). Although congruent signals amplify the effects of each other because they cross-confirm the signaled content (Plummer et al., 2016; Stern et al., 2014), incongruent signals create ambiguity (Zhao & Zhou, 2011). For instance, when a PhD program applicant submits a high GRE score and a poorly written writing sample, evaluators find it difficult to assess the applicant's aptitude in academic writing. Similarly, a wine with a Napa Valley appellation (a high-standard designation) but low critic ratings has a confusing product image that limits the winery's ability to charge high price (Zhao & Zhou, 2011).

One defining characteristic of research on signal incongruence is that incongruent signals present incompatible information on the same dimension, creating intradimensional incongruence (Gomulya et al., 2019; Lungeanu et al., 2018; Rhee & Haunschild, 2006; Zhao & Zhou, 2011). Notably, Vergne and colleagues (2018: 798) contrasted CEO overcompensation with engagement in corporate philanthropy because "philanthropy and overcompensation represent instances of a positive and a negative signal (respectively), located at the *two extremes of a semantic scale* [emphasis added] that ranges from altruism/generosity to selfishness/greed. This is precisely what makes them incongruent to our audience." Audiences' reactions to the ambiguity created by intradimensional incongruence are rather unpredictable. They can ignore the incompatible signals (Stern et al., 2014; Zhao & Zhou, 2011) or choose to disproportionately weight positive or negative signals (Gomulya et al., 2019; Lungeanu et al., 2018; Rhee & Haunschild, 2006; Zavyalova, Pfarrer, Reger, & Hubbard, 2016). However, prior research has not yet examined how audiences respond to interdimensional signal incongruences. The question then arises regarding the different dimensions of a firm that audiences could consider. To understand this aspect, we turn to the well-established literature on social evaluations.

Integrity and capability dimensions. Prior research on social evaluations has identified *capability* and *integrity* as the universal dimensions on which audiences evaluate an actor (Connelly et al., 2016; Mishina et al., 2012; Park & Rogan, 2019). For instance, Mishina and colleagues (2012: 460) argued that audiences engage in "collective evaluations about the quality and performance characteristics of a particular firm" (i.e., capability) and "collective judgments regarding a firm's incentive structures and behavioral tendencies based on observations of

its prior actions" (i.e., integrity) (see also Park & Rogan, 2019). Similarly, in prior research on signaling theory, scholars have noted that audiences consider "situations where a firm falls short of technically proficient performance" (i.e., capability failure) or a "situation wherein the firm's motives, honesty, and/or character fall short" (i.e., integrity failure) (Connelly et al., 2016: 2136). These dimensions generalize to the human tendency of evaluating others based on "sincerity, trustworthiness and morality" and "intelligence, skill, creativity and efficacy," labeled as the warmth and competence dimensions (Fiske et al., 2007: 77), the morality and competence dimensions (Wojciszke et al., 1998), or the social good–bad and intellectual good–bad dimensions (Rosenberg et al., 1968) in social psychology.

With integrity and capability being the fundamental evaluative dimensions, most of the signals in the signal incongruence research can be interpreted to fall within one of these two categories. That is, prior studies have largely focused on the incongruence among integrity signals or among capability signals, as mentioned above (Lungeanu et al., 2018; Rhee & Haunschild, 2006; Stern et al., 2014; Vergne et al., 2018; Zhao & Zhou, 2011). However, due to the high relevance of both dimensions in assessing a firm's value creation potential (Mishina et al., 2012), audiences are likely to consider signals of both dimensions when necessary, because social actors tend to group information cues based on their evaluative goals (Bitektine, 2011; Durand & Paolella, 2013). When audiences receive incompatible information about an actor's capability and integrity, signal incongruence can arise across these dimensions.

Interdimensional incongruence. When considering the two fundamental evaluative dimensions, two forms of interdimensional incongruence may arise—the incongruence between positive integrity and negative capability signals and between negative integrity and positive capability signals. Here, we specifically focus on the latter type of interdimensional incongruence because negative integrity judgments have greater diagnosticity than do positive integrity judgments (Mishina et al., 2012) and both positive and negative capability judgments (Wojciszke et al., 1998). Specifically, we explore how audiences' reaction to the negative integrity signals are shaped by the incongruence created by the salience of positive capability signals.

The revelation of misconduct, defined as the "pursuit of any action considered illegitimate from an ethical, regulatory, or legal standpoint" (Harris & Bromiley, 2007: 351), signals audiences that the firm's integrity is questionable (Connelly et al., 2016; Gomulya & Mishina, 2017). Because integrity signals inform an actor's goals and behavioral intentions, negative signals cast doubt about the actor's qualification as an accepted norms-abiding entity (Bitektine, 2011; Sullivan, Haunschild, & Page, 2007). Hence, any instance of misconduct is of significant salience (Bundy & Pfarrer, 2015; Greve et al., 2010).

When capability signals are not salient, audiences would only consider the highly salient negative integrity signal with no interdimensional incongruence created (Drover et al., 2018). However, when positive capability signals are salient upon the reception of a negative integrity signal, interdimensional incongruence arises because the capability signals are cognitively available and more readily incorporated in evaluations (Bonardi & Keim, 2005; Pollock, Rindova, & Maggitti, 2008). Audiences are likely to simultaneously process the compulsive negative integrity signal and the cognitively available positive capability signals in assessing the firm because audiences tend to jointly consider signals that bear upon the evaluative task (Bitektine, 2011; Drover et al., 2018; Durand & Paolella, 2013; Mishina et al., 2012). Here, the magnitude of interdimensional incongruence is proportional to the magnitude of the positive capability signals' salience because the extent to which the positive capability signals are cognitively available, and thus are processed together with the negative integrity signal, is defined by the extent of their salience (Drover et al., 2018; Vanacker et al., 2019).

Resolution of interdimensional incongruence. When facing the incongruence between negative integrity signals and salient positive capability signals, audiences are likely to reassess the capability signals in light of the newly received integrity signal. Negative integrity signals form critical information cues for audiences because firms are assumed to comply with accepted norms and principles. The revocation of this assumption creates extreme uncertainty and distrust that must be dealt with immediately and in profound ways (Bundy & Pfarrer, 2015). Indeed, Beckert (2006: 318) argued that

> the availability of exchangeable products and institutional provisions is a necessary but insufficient condition for the existence of markets. A further constitutive element of most markets is trust between the exchange partners. . . . trust plays a crucial role in the prevention of market failure.

Accordingly, signals indicating the violation of the assumed conformity have the utmost gravity for audiences, such that the signals stick to the violators for a substantially long time (Mishina et al., 2012; Pollock, Lashley, Rindova, & Han, 2019) and audiences show strong and exaggerated responses to integrity violations (Burgoon & Le Poire, 1993; Zavyalova, Pfarrer, Reger, & Shapiro, 2012). The penalties imposed often exceed the warranted magnitude—for instance, what was ordered in court (Alexander, 2008; Greve, Palmer, & Pozner, 2010)—and also spill over to innocent firms that share the characteristics of the violating firm (Jonsson, Greve, & Fujiwara-Greve, 2009; Paruchuri & Misangyi, 2015).

Aside from the immediate shock created, negative integrity judgments have primacy in evaluating an actor's underlying intentions and motivations (Mishina et al., 2012). This primacy imbues negative integrity signals with significant diagnosticity as audiences "respond with staunch resistance and immutable stances, even in the face of information that rationally justifies the organizations' [unethical] actions" (Pollock et al., 2019: 450). Specifically, signs of a lack of integrity spark suspicions about an actor's ability to understand and adhere to socially accepted norms (Stellar & Willer, 2018), which result in stakeholders ceasing interactions with the violator (Arthaud-Day et al., 2006; Cowen & Marcel, 2011; Sullivan et al., 2007; Zavyalova et al., 2016), irrespective of its capabilities. Confirming the diagnosticity of integrity violations, Jensen (2006) found that clients defected from Arthur Andersen upon hearing of its integrity violation, notwithstanding its high capability.

The fundamental nature of integrity violation could reshape the context in which capability signals are perceived because the meanings attached to signals can be altered by changes in the signaling environment or context (Connelly et al., 2011; Park & Mezias, 2005; Vanacker et al., 2019). Audiences' assumption that firms generally have sound intentions and character is what enables the firms to carry out their day-to-day operations without every detail being questioned (Bitektine, 2011; Mishina et al., 2012; Zavyalova et al., 2012). Inevitably, audiences' evaluations of behaviors as signals of superior capability are also based on the assumption of acceptable integrity, making positive capability judgments dependent upon and sensitive to integrity judgments (Hahl & Zuckerman, 2014). Thus, the distrust caused by the revoked assumption casts suspicions about the integrity of firms' capabilities because audiences hold "an implicit or explicit expectation that they [i.e., firms] may be called on at any time to explain and justify their behavior"; failing to do so can lead to "being devalued because other actors question the [firms'] quality" (Jensen, 2006: 98), thereby dismantling overall quality perceptions (Sullivan et al., 2007).

Instances of integrity violations marring capability judgments have been observed often. In one case the publicizing of sexual harassment cases brought against doctors undermined patients' general trust in their medical expertise, even though the two are unrelated (Bradby, Gabe, & Bury, 1995). Confirming this, Stellar and Willer (2018) showed in multiple different experiments that integrity judgments shape competence judgments, implying that negative integrity signals can sour capability signals. At the organization level, documenting the detrimental spillover of integrity judgments to capability judgments, Jonsson and colleagues (2009) found that when the Swedish mutual fund industry scandal was sparked by Skandia AB's integrity violations, mutual funds with higher capabilities (as measured by higher consumer quality ratings) suffered more from consumer defection, as evidenced by more negative net flows.

Consequently, the marring of capability judgments likely results in further devaluations apart from the direct penalties from the integrity failures, because audiences must reevaluate their positive capability judgments in light of their newly formed negative integrity judgments. The key to this process, as mentioned above, is the salience of the firm's prior capability signals when misconduct is revealed because these capability signals are more readily included in the signal sets for processing the misconduct (Drover et al., 2018; Pollock et al., 2008). In line with the notion that audiences group information according to their evaluative goals (Bitektine, 2011; Durand & Paolella, 2013), the extent to which a firm's integrity is perceived as relevant to the firm's capability depends on an audience's inclination to associate the two dimensions (Bhattacharjee, Berman, & Reed, 2013; Wojciszke et al., 1998). Thus, we argue that the higher the salience of prior capability signals, the larger the magnitude of audiences' punitive reactions to the newly emitted negative integrity signal, because such capability signals are marred to a larger extent. Next, we develop specific hypotheses with financial restatements as a negative integrity signal and alliance announcements as a positive capability signal.

Investor Reaction to Incongruence Created by Financial Misconduct and Salient Alliance Announcements

We focus on the revelation of financial misconduct captured by irregular financial restatements—the acknowledgments by firms that their prior earnings were misreported (U.S. Government Accounting Office, 2002, 2006)—as the negative integrity signal processed by investors. Irregular financial restatements significantly damage investors'—and, by extension, the public's—perception of a firm's integrity (Beckert, 2006; Klein, 1998), as evidenced by the unanimously negative investor reactions to restatements found in prior research (Harris & Bromiley, 2007; Kang, 2008; Palmrose et al., 2004; Paruchuri & Misangyi, 2015). Whereas financial restatements can also arise from clerical errors, we follow prior studies by focusing on those related to reporting irregularities (Gomulya & Boeker, 2014; Harris & Bromiley, 2007), represented by the extreme case of Enron restating its financials. Enron artificially bloated its financial statements to include nonexistent sales; the firm's acknowledgment and correction of those misstated irregularities resulted in a huge scandal (Coffee, 2001). These restatements represented a major violation of regulatory and social norms that undermined the functioning of financial markets (Beckert, 2006; Gomulya & Mishina, 2017; Klein, 1998; Paruchuri & Misangyi, 2015), and cast doubt on the integrity of restating firms by signaling fraudulent intentions (Palmrose et al., 2004) and nonconformity to established norms (Greve et al., 2010).

Alliance announcements, on the other hand, are interpreted by investors as signals of a firm's capabilities and resource quality that indicate its attractiveness to peer firms (Das et al., 1998; Jensen, 2004).[1] Moreover, the announcements signal firms' intentions to better utilize their resources and capabilities (Swaminathan & Moorman, 2009), form longer-term strategic initiatives (Woolridge & Snow, 1990), and commit more strongly to value creation (Park & Mezias, 2005). Thus, investors generally favor alliances and positively react immediately to such announcements (Anand & Khanna, 2000; Das et al., 1998; Koh & Venkatraman, 1991; McConnell & Nantell, 1985; Ozcan & Overby, 2008; Woolridge & Snow, 1990) compared to announcements related to other growth strategies such as acquisitions, which are generally interpreted as destroying firm value and incur negative investor reactions (Graffin, Haleblian, & Kiley, 2016; Haleblian, Devers, McNamara, Carpenter, & Davison, 2009).

The salience of prior alliance announcements as positive capability signals creates incongruence with the negative integrity signal emitted in the form of an irregular financial restatement, and shapes investor reactions to the restatement. Investors penalize irregular financial restatements even when interdimensional incongruence is not present; in other words, when prior alliance announcements are not salient. Due to the critical damage done to the trustworthiness of the restating firms (Arthaud-Day et al., 2006; Gomulya & Mishina, 2017), costs are incurred as the firms take corrective actions, which may extend as far as directors' exodus (Arthaud-Day et al., 2006; Kang, 2008), reinforcement of internal monitoring, and implementation of management changes (Feroz, Park, & Pastena, 1991; Gomulya & Boeker, 2014; Palmrose et al., 2004). These firms may also have difficulties securing capital at attractive rates (Hribar & Jenkins, 2004). Investors react in a strong and exaggerated fashion, even after accounting for these increased costs, as they lose trust and experience increased uncertainty about the firm due to this negative integrity signal (Gomulya & Mishina, 2017; Palmrose et al., 2004). Thus, for restating firms without salient alliance announcements, investors' reactions to restatements are driven mainly by these aspects of integrity violation. The interdimensional incongruence has less to do with investor reactions in this case.

However, when interdimensional incongruence is high due to the higher salience of alliance announcements, investor reactions are further influenced by resolution of the incongruence. Following the revelation that a firm has violated integrity norms, the salience of alliance announcements leads investors to consider these alliance announcements and the negative integrity signal in the same

[1] Interfirm relationships can largely be characterized by two types of uncertainty (Park & Rogan, 2019): the lemons problem (i.e., inability to observe partners' actual quality *ex ante* [Akerlof, 1970]) and the moral hazard problem (i.e., inability to rule out partners' potential opportunistic behavior [Arrow, 1971]). Alliance announcements primarily resolve the lemons problem because audiences consider partners as having assessed each other's capabilities. However, the moral hazard problem, reflecting a potential lack of integrity, cannot be resolved at the time of announcements because the allying firms cannot be certain of the other parties' underlying intention until later during the implementation stage (Park & Rogan, 2019). Thus, it seems reasonable to consider investors' reactions to the alliance announcements as mainly driven by favorable firm capability perceptions.

consideration set (Drover et al., 2018). However, given the primacy of integrity judgments in forming a more diagnostic lens (Beckert, 2006; Fiske et al., 2007; Mishina et al., 2012; Stellar & Willer, 2018; Wojciszke et al., 1998), the new integrity failure information creates a new context for audiences in which they perceive the capability signals (Connelly et al., 2011; Park & Mezias, 2005; Vanacker et al., 2019). That is, the distrust caused by negative integrity signals induces investors to question the integrity of the salient capability signals (Gomulya & Mishina, 2017). Essentially, investors resolve the interdimensional incongruence by extending their negative reactions to the integrity issue to salient alliance announcements that are cognitively available and relevant to the firm evaluation process (Bonardi & Keim, 2005; Pollock et al., 2008). For restating firms, the magnitude of the audience's reaction is therefore defined by the integrity failure itself and by the extent to which alliance announcements are salient.

Salience of alliance announcements. The salience of alliance announcements and the magnitude of the interdimensional incongruence are not the same for all firms when irregular financial misconduct is revealed (Hirshleifer & Welch, 2002; Pollock et al., 2008). Research on social evaluations (Bonardi & Keim, 2005; Pollock et al., 2008) and in social psychology (Hawkins & Hoch, 1992; Taylor & Fiske, 1975; Tversky & Kahneman, 1973) has established that the salience of a stimulus, or a signal, is defined by its frequency and extremity. Extreme and frequently occurring stimuli tend to be more cognitively available because they are figural or stand out relative to the typical flow of information, and thus are more easily recalled when making assessments (Taylor & Fiske, 1975). Therefore, the salience of alliance announcements should be greater for firms with more frequent or extreme announcements.

First, repeated interpretation of alliance announcements as capability signals prior to an irregular restatement enhances the signals' salience and cognitive availability (Connelly et al., 2011; Pollock et al., 2008). The incongruence will be greater when firms have more alliance announcements prior to the restatements than when firms have few or no announcements, resulting in proportionate devaluation of the firms by investors. Hence, we expect:

Hypothesis 1. The greater the frequency of a restating firm's alliance announcements prior to an irregular financial restatement, the more negative the investor reaction toward the restating firm upon the financial restatement.

Second, the magnitude of investors' positive expectations related to past alliance announcements may serve as a cognitive anchor, increasing the likelihood of announcements being recalled and causing incongruence with the restatement, because extremity of a stimulus determines its salience (Hawkins & Hoch, 1992; Taylor & Fiske, 1975). Thus, we expect:

Hypothesis 2. The greater the extremity of a restating firm's alliance announcements prior to an irregular financial restatement, the more negative the investor reaction toward the restating firm upon the financial restatement.

Boundary Conditions: Firm Size and Diversification

Although alliances generally elicit positive stock market reactions, alliances are not perceived as equally important for all allying firms; thus, alliance announcements have different levels of salience for different firms (Das et al., 1998; McConnell & Nantell, 1985). Accordingly, the magnitude of investor reactions to the incongruence created by irregular financial restatements may also differ across firms. Specifically, alliance announcements would have prompted the formation of more salient capability signals to the extent that the alliances were considered as important to a firm. These differing levels of importance may influence the salience of previous alliance announcements, which, as mentioned above, determines the magnitude of their incongruence with the financial restatement, and thus the magnitude of the negative investor reaction. Drawing from earlier research in the signaling literature, we focus on firm size and firm diversification as the boundary conditions.

Firm size. We argue that the magnitude of negative investor reaction to the interdimensional signal incongruence is likely to be greater for small firms than for large firms. With alliance announcements providing additional information cues about the quality of firms' resources and capabilities (Jensen, 2004) and ultimately future value-creating potential (Das et al., 1998), the announcements are more useful for investors to assess small firms than large firms (Ozcan & Overby, 2008). Large firms are more active in providing information to external constituents, typically through well-developed procedures implemented by investor relations departments (Carter, 2006; Rao & Sivakumar, 1999), and infomediaries such as the media and analysts provide considerably more coverage of large firms (Bhushan, 1989). In

contrast, information about small firms is scarce, and costly to obtain (Hong, Lim, & Stein, 2000). Accordingly, prior research has found that investors react more positively to alliance announcements by small firms than by large firms (Das et al., 1998; Koh & Venkatraman, 1991; McConnell & Nantell, 1985), reflecting the higher salience of the announcements by small firms. Thus, in response to alliance announcements, investors form more salient capability signals of small firms than of large firms.

When irregular financial restatements cause incongruence, investors react negatively to the extent that alliance announcements are more frequent or extreme, as argued earlier. This effect may vary with firm size. For firms with no or few alliance announcements prior to restatements, incongruence does not arise regardless of firm size, because these announcements are not readily recalled by investors. However, when firms have made frequent alliance announcements, the announcements become salient at the time of the restatements, and the salience is higher for small firms compared to large firms. This difference in the salience between small and large firms' alliance announcements causes investors to perceive greater incongruence with the restatements by small firms than with those by large firms, leading to more negative reactions given the same level of frequency of the alliance announcements. Hence, we propose:

Hypothesis 3. The relationship between the frequency of past alliance announcements and investor reaction to irregular financial restatements is less negative for larger firms than for smaller firms.

Similarly, when alliance announcements do not qualify as extreme signals to investors, as evidenced by their own weak prior reactions to the announcements, investors do not recall those announcements when a restatement is issued, resulting in no significant aggravation in firm valuation regardless of firm size. However, because the announcements by small firms are more salient than those by large firms, investors' negative reactions to the incongruence from the restatements associated with these extreme announcements should be larger for small firms than for large firms. Thus, we hypothesize:

Hypothesis 4. The relationship between the extremity of past alliance announcements and investor reaction to irregular financial restatements is less negative for larger firms than for smaller firms.

Firm diversification. Firms' level of diversification can also influence the salience of alliance announcements to investors. A firm that is more diversified serves more market segments than does a firm that is less diversified (Palepu, 1985; Teece, 1982). However, due to the complexity of diversified firms' operations, signals from such firms are often distorted and have limited signaling value (Carter, 2006; Fombrun & Shanley, 1990). In our context, the inherent complexity of diversified firms may hamper investors' understanding of how alliances relate to the firms' operations as a whole (Carter, 2006; Connelly et al., 2011), particularly when considering that alliances primarily serve business-level purposes (Gulati, 1995; Singh & Mitchell, 2005). In contrast, alliance announcements by focused firms serve as more straightforward and less noisy signals for investors to infer value creation potential. Thus, alliance announcements by focused firms are more salient than are those by diversified firms.

Similar to our logic regarding the effect of firm size, diversified firms will be less susceptible to audiences' negative reaction to the incongruence created by financial restatements because alliance announcements are less salient for diversified firms than for focused firms. When firms have made no or few alliance announcements prior to restatements, incongruence between restatements and alliance announcements does not lead to devaluation; this is true regardless of the firms' level of diversification, because these announcements are not readily recalled by investors when restatements are issued. However, for firms with frequent alliance announcements, the announcements become salient at the time of the restatements, and to a much greater extent for focused firms than for diversified firms. This difference in the salience of alliance announcements causes investors to perceive greater incongruence with the restatements by focused firms than those by diversified firms, even when prior alliance announcements were issued with the same frequency. Hence, we propose:

Hypothesis 5. The relationship between the frequency of past alliance announcements and investor reaction to irregular financial restatements is less negative for more diversified firms than for less diversified firms.

Similarly, when investor reactions to alliance announcements have been muted before financial restatements are issued, prior announcements do not shape investor reactions to the restatements, irrespective of the firm's level of diversification. When investor reactions to alliance announcements have been extreme, those announcements are cognitively available and recalled when restatements are issued, resulting in a more negative investor reaction. Given similarly high levels of extremity, however,

investors will react more negatively to restatements issued by focused firms than by diversified firms, because the extreme alliance announcements are more salient for the former than for the latter. Hence, we hypothesize that:

Hypothesis 6. The relationship between the extremity of past alliance announcements and investor reaction to irregular financial restatements is less negative for more diversified firms than for less diversified firms.

RESEARCH METHODS

Research Context, Sample, and Data Sources

Our theorization concerns the differences in investor reactions to financial restatements by firms whose alliance announcements have different levels of salience, and the boundary conditions under which these differences hold. Because investors pay attention to alliances in publicly traded software firms and chemical and pharmaceutical firms in the United States (Lavie & Miller, 2008; Powell et al., 1996), we tested our hypotheses in these contexts. We identified a total of 3,477 firms listed in Compustat with the three-digit SIC codes 283 (chemical and pharmaceutical industry) and 737 (software industry). The negative integrity signals in our study were financial restatements to correct irregularities in reports filed with the Securities and Exchange Commission (SEC) (Arthaud-Day et al., 2006; Harris & Bromiley, 2007; Palmrose et al., 2004). As Harris and Bromiley (2007: 351) suggested, "the most serious restatements involve criminal fraud," such as those that caused the Enron scandal. Thus, we excluded restatements caused by clerical and mathematical errors from our sample and only included irregular restatements that broke ethical, legal, or regulatory norms (Harris & Bromiley, 2007). During 2000–2014 firms in the software firms and chemical and pharmaceutical industries issued 935 irregular financial restatements. We collected information about these events from Audit Analytics, which formed our sample. We collected other firm data from Thompson's SDC Platinum, Compustat, and CRSP databases. We also accounted for potential selection bias, described in detail later.

Dependent Variable

We theorized investor reactions to the incongruence caused by irregular restatements with salient alliance announcements. Prior research on investor reactions in the restatement context has utilized cumulative abnormal returns (CAR) to restating firms or to other associated firms (Akhigbe, Kudla, & Madura, 2005; Palmrose et al., 2004; Paruchuri & Misangyi, 2015), where negative CAR indicate the penalty imposed by investors (Feroz et al., 1991; Palmrose et al., 2004). Accounting for the possibility of predisclosure information leakage, we operationalized investor reaction to a restatement at time t as the CAR of the restating firm in the five-day window $[t - 2, t + 2]$. We ran robustness tests with longer time windows up to $[t + 20]$.

We calculated the CAR of firm i as the accumulation of abnormal daily returns (AR_{it}) over the five-day event window for that firm. The abnormal daily return for each day was computed as the difference between the actual return of firm i's stock on that day and its expected return on that day. We calculated expected return using the market-adjusted model:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where R_{it} is the return for firm i on day t, R_{mt} is the market return on day t, β_i is the systematic risk of firm i, α_i is the rate of return for firm i when R_{mt} is equal to 0, and ε_{it} is a serially independent disturbance term ($E(\varepsilon_{it}) = 0$). The market model parameters, α_i and β_i, are estimated over a prescribed "normal" period, which should be based on an estimation window occurring prior to and not overlapping with the event window (McWilliams & Siegel, 1997). Following prior event studies (Gulati, Lavie, & Singh, 2009; Paruchuri & Misangyi, 2015; Zajac & Westphal, 2004; Zhang & Wiersema, 2009), we employed $[t - 256, t - 23]$ as a window to estimate normal returns. Thus, we calculated abnormal daily returns for firm i on day t as:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt})$$

The abnormal stock returns on a given day equals the deviation between the actual returns and expected returns based on the firm's historical stock performance. Thus, the summation of abnormal returns for firm i over an event window $[-k, n]$ yields CAR as follows:

$$\sum_{t-k}^{t+n} AR_{it}$$

We used the Eventus program (CRSP database) and the market-adjusted model based on an equally weighted index with dividends (e.g., Palmrose et al., 2004) to estimate the CAR around each financial

event. We multiplied these values by 100 to yield percentages.

Independent Variables

Frequency of alliance announcements. We conceptualized the salience of alliance announcements as being related to the number of alliance announcements in the recent past. We gathered information about the alliances formed by restating firms from Thompson's SDC Platinum database on alliances and complemented it with information from the Recombinant alliance database. Additionally, the salience of an event that happened last month may differ from that of events that occurred a long time ago (Pollock et al., 2008; Tversky & Kahneman, 1973). Thus, we measured our independent variable, *frequency of alliance announcements*, as the number of alliance announcements that a firm made discounted by the time (in months) between the alliance announcement and the restatement:

$$\textit{Frequency of alliance announcements} = \sum_i \frac{1}{n_i}$$

where n_i indicates the number of months from alliance announcement i of the focal firm to the time of the firm's financial restatement. We considered all alliances announced during the 36-month period before the financial restatement, as prior research has shown that typical alliances last approximately 30 months (Harrigan, 1985; Pangarkar, 2003; Rahman & Korn, 2014).[2] We discuss the potential impact of using alternative discount functions such as square and square root of months as discount factors (Baum & Ingram, 1998) in the "Robustness checks" section.

Extremity of alliance announcements. The extremity of alliance announcements, another dimension of salience, was measured as the magnitude of investor reaction. The greater the magnitude of investor reaction to an alliance at the time of its announcement the more extreme it is as a signal, causing it to remain salient. Again, because alliance announcements may have occurred at different points in the past, the salience of those announcements differs. Thus, we measure the *extremity of alliance announcements* as the sum of the CARs in the five-day period around a firm's alliance announcements, discounted by the time (in months) between the alliance announcement and the restatement:

$$\textit{Extremity of alliance announcements} = \sum_i \frac{CAR_i}{n_i}$$

where n_i indicates the number of months from alliance announcement i of the focal firm to the time of the firm's financial restatement, and CAR_i is the cumulative abnormal return for alliance announcement i. We present robustness checks using different discount functions. As explained above, we considered all alliances in the 36-month period.

Firm size. Firm size was operationalized as the log-transformed total assets of the firm as reported in the quarter before the financial restatement (Arthaud-Day et al., 2006; Baysinger & Hoskisson, 1989). Following prior research, we log-transformed the variable to correct the skewness of the distribution (Collins & Clark, 2003; Kimberly, 1976). We collected this information from the quarterly financial data of the Compustat database.

Firm diversification. The level of a firm's diversification was captured by the count of different industry segments in which a firm had a presence (Lamin, 2013; Zhou, 2013).[3] We collected this information from the Compustat Segment database.

Control Variables

We controlled for several firm and restatement characteristics that may influence investor reactions to financial restatements. With respect to firm characteristics, we included firm reputation characteristics, as investor reactions to financial restatements may be shaped by a firm's reputation. We included an indicator variable, *Fortune's Most Admired*, to account for whether a firm belonged to the previous year's list of highly reputable firms published by *Fortune* magazine (Pollock et al., 2019). Additionally, a firm may have a reputation for being socially responsible. Because firms can simultaneously possess strengths and concerns in their corporate social

[2] Using the 24-month window did not change the results.

[3] In an unreported analysis, we used the entropy measure based on sales in different segments to capture firms' levels of diversification (Hoskisson, Hitt, Johnson, & Moesel, 1993; Palepu, 1985), which yielded similar results. Thus, we proceed with the simpler measure for more intuitive interpretation.

responsibility (CSR) (Strike, Gao, & Bansal, 2006), we included two variables, *CSR strengths* and *CSR concerns*. We also included a binary variable, *KLD missing*, and coded the values for CSR strengths and CSR weaknesses as 0 for the observations concerning firms not registered with the MSCI KLD database.

We included *firm age* to account for the possibility that investors react differently to restatements by firms of different ages (Paruchuri & Misangyi, 2015). We also included *firm recent performance*, which is measured as the return on sales in the quarter before the restatement, to account for the possibility that investors perceive these firms as having different efficiencies and react differently to them (Gomulya & Boeker, 2014). Because investors could react differently to restatements by firms with different liquidities (Ashbaugh-Skaife, Collins, & Kinney, 2007), we controlled for *firm liquidity*, measured as total current assets divided by total current liabilities. We also included the ratio of selling and general administrative expenses to firm sales to control for potential effect of *firm slack* (Bromiley, 1991). Part of our theoretical mechanism involves investors' concerns about firms' access to capital (Hribar & Jenkins, 2004). Thus, we controlled for *price-to-earnings ratio*, indicating a firm's ability to raise capital in equity markets (Combs & Ketchen, 1999). Finally, we included a count variable for the number of *prior financial restatements* a firm had made prior to the focal financial restatement.

We included several restatement characteristics that can shape investor reactions. First, we included an indicator variable for *special announcement* because some restatements are issued via special announcements while others are issued in conjunction with regular quarterly or annual results (Paruchuri & Misangyi, 2015). We included the direction of restatements because not all restatements end up lowering the final performance (Palmrose et al., 2004). Thus, to capture the directions of restatements, as well as their magnitudes, we included the *restated size* of financials in million USD. Questions raised about the appropriateness of firms' actions and adherence to social norms in the context of restatements may find support if the firms also declare extraordinary items beyond the typically accepted reporting items (Palmrose et al., 2004). Thus, we included *extraordinary items*, measured as the amount reported in extraordinary items. If no extraordinary items were reported, this variable was coded as 0. We also included an indicator variable, *auditor initiated*, to capture whether the restatement was initiated by an auditor (Arthaud-Day et al., 2006). A binary variable, *SEC investigation*, coded as 1 if an SEC investigation was mentioned with respect to a restatement and 0 otherwise, was included to control for the impact of SEC investigations on investor reactions (Paruchuri & Misangyi, 2015). Additionally, we included an indicator variable, *board approved*, to capture whether the firm's board had approved a restatement at the time of restatement (Palmrose et al., 2004).

Lastly, we included the industry and year fixed effects, and we controlled for the impact of the passing of the Sarbanes–Oxley (SOX) Act in 2003 through *after SOX Act*, which is coded as 1 for years from 2003 onwards (Hammersley, Myers, & Shakespeare, 2008).

Analytical Technique

We applied generalized linear regression analysis for our dependent variable (i.e., CAR) (e.g., Barnett & King, 2008; McWilliams & Siegel, 1997; Zajac & Westphal, 2004). Moreover, our data consist of multiple restatements by the same firm. Thus, we computed robust standard errors at the firm level. We used the following regression equations to test our hypotheses:

$$CAR_{ij} = \alpha + \beta_0 Controls + \beta_1 Frequency\ of\ alliance\ announcements_{ij} + \beta_2 Extremity\ of\ alliance\ announcements_{ij} + e_{ij} \quad (1)$$

$$CAR_{ij} = \alpha + \beta_0 Controls + \beta_1 Frequency\ of\ alliance\ announcements_{ij} + \beta_2 Firm\ size_{ij} + \beta_3 (Frequency\ of\ alliance\ announcements_{ij} * Firm\ size_{ij}) + e_{ij} \quad (2)$$

$$CAR_{ij} = \alpha + \beta_0 Controls + \beta_1 Frequency\ of\ alliance\ announcements_{ij} + \beta_2 Firm\ diversification_{ij} + \beta_3 (Frequency\ of\ alliance\ announcements_{ij} * Firm\ diversification_{ij}) + e_{ij} \quad (3)$$

$$CAR_{ij} = \alpha + \beta_0 Controls + \beta_1 Extremity\ of\ alliance\ announcements_{ij} + \beta_2 Firm\ size_{ij} + \beta_3 (Extremity\ of\ alliance\ announcements_{ij} * Firm\ size_{ij}) + e_{ij} \quad (4)$$

$$CAR_{ij} = \alpha + \beta_0 Controls + \beta_1 Extremity\ of\ alliance\ announcements_{ij} + \beta_2 Firm\ diversification_{ij} + \beta_3 (Extremity\ of\ alliance\ announcements_{ij} * Firm\ diversification_{ij}) + e_{ij} \quad (5)$$

where CAR_{ij} is the CAR for firm i in the five-day window around financial restatement j, *frequency of alliance announcements*$_{ij}$ is the time-discounted count of alliance announcements by firm i before restatement j, *extremity of alliance announcements*$_{ij}$ is the time-discounted CAR related to alliance announcements made by firm i before restatement j, *firm size*$_{ij}$ is the size of firm i at the time of the restatement j, *firm diversification*$_{ij}$ is the extent of diversification of firm i at the time of restatement j, and e_{ij} is the residual. Hypothesis 1 is supported when β_1 in Equation (1) is negative and significant. Hypothesis 2 is supported when β_2 in Equation (1) is negative and significant. The interaction hypotheses (Hypotheses 3–6) are supported when β_3 in Equations (2)–(5), respectively, are positive and significant.

Although our initial sample included all software firms and chemical and pharmaceutical firms, not all of these firms had restatements. It is possible that firms that restate their financials are systematically different from those that do not, which could have been a source of selection bias because our dependent variable, investor reaction to the revelation of financial misconduct, is available only for firms that restated their financials. To correct for this sample selection issue, we used the Heckman two-stage model. We performed a first-stage probit regression on all 3,477 firms in the chemical and pharmaceutical industry and the software industry available in Compustat during the observation period using the dependent variable coded as 1 if a firm restated its financials in the current year and 0 otherwise (Burns & Kedia, 2006; Harris & Bromiley, 2007; O'Connor, Priem, Coombs, & Gilley, 2006). We included the inverse Mills ratio computed from this first-stage estimation in the second-stage models as an additional variable. *Employee stock options* of the firms were used the exogenous instrument, which had a significant effect ($p < 0.01$).

RESULTS

The means, standard deviations, and simple bivariate correlations are presented in Table 1. The mean of CAR, our dependent variable, is −2.04%—equivalent to a loss of 2 billion dollars for a firm with a market valuation of a hundred billion dollars—confirming that investors take irregular financial restatements seriously. Table 1 also shows that none of the bivariate correlations are high—all are less than 0.61.

The results of the generalized linear regression analysis with robust standard errors and clustered on the firm are presented in Table 2. The selection correction factor, the inverse Mills ratio, is not significant, indicating no sample selection bias. Model 1 presents the results of the specification with control variables only. Model 2 includes the *frequency* and *extremity of alliance announcements*. The highest variance inflation factor (VIF) in the main effects model (Model 2) is 1.81, less than the cut-off point of 5. We also ran collinearity diagnostics using the *coldiag* program (Belsley, Kuh, & Welsch, 2005). The highest condition number was 15 across Models 1–8, which is well below the suggested threshold of 30 (Belsley et al., 2005; Gomulya & Boeker, 2014). Thus, concerns about multicollinearity are mitigated, except for Model 9, for which we refrain from interpreting results.

The results show that the effect of frequency of alliance announcements is negative and significant ($\beta_1 = -4.17$; $p < 0.10$), as is the effect of extremity of alliance announcements ($\beta_2 = -0.58$; $p < 0.05$). That is, a one standard deviation increase in the frequency of the announcements results in a CAR of −1.58%. For a firm with a market valuation of 100 billion USD, this implies a loss of 1.58 billion USD. Although this effect may seem small, its magnitude is higher than that reported in other studies on CAR. For example, Barnett and King (2008) found that firms in an industry suffered an average loss of 0.30% following an industrial accident. Because the coefficient of frequency of alliance announcements is partially significant ($p < 0.10$), we are cautious about asserting its main effect. However, the effect magnitude interpretation of the extremity of alliance announcements shows that a one standard deviation increase results in a CAR of −1.19%. For a firm with a market valuation of 100 billion USD, this implies a loss of 1.19 billion USD.

Model 3 includes the interaction term between the frequency of alliance announcements and firm size to test Hypothesis 3, which states that the negative main effect found in Hypothesis 1 is weakened by firm size. The coefficient of the interaction term is positive and significant ($\beta_3 = 2.53$; $p < 0.01$). This interaction, plotted in the left panel of Figure 1A,

TABLE 1
Descriptive Statistics and Correlation Coefficients

Variables	Mean	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Investor reaction to restatement	−2.04	13.19																	
2. Year	2006	4.02	0.08																
3. Inverse Mills ratio	2.08	0.16	−0.01	0.00															
4. After SOX Act	0.87	0.34	0.04	0.55	−0.39														
5. Firm age	11.22	9.43	0.02	0.20	−0.02	0.17													
6. Fortune's Most Admired	0.00	0.05	0.00	0.03	0.24	0.02	0.15												
7. KLD missing	0.54	0.50	−0.02	−0.13	0.16	−0.15	−0.15	0.00											
8. CSR strengths	0.33	1.16	0.05	0.03	−0.08	0.10	0.33	0.19	−0.32										
9. CSR concerns	0.42	0.94	0.00	0.12	−0.28	0.16	0.24	0.06	−0.49	0.49									
10. Firm recent performance	−22.85	250.88	−0.01	−0.04	0.00	−0.03	0.05	0.00	−0.08	0.03	0.04								
11. Price-to-earnings ratio	20.71	83.94	−0.04	−0.02	−0.17	0.05	0.01	−0.01	−0.10	0.01	0.13	0.02							
12. Firm slack	2.35	27.91	−0.02	0.09	−0.13	0.02	−0.04	0.00	0.06	−0.02	−0.03	−0.30	−0.02						
13. Firm liquidity	3.35	4.25	0.00	0.08	0.07	0.00	−0.07	−0.02	0.02	−0.05	−0.01	0.01	0.02	0.03					
14. Extraordinary items	−0.04	0.95	0.07	0.07	−0.04	0.12	0.02	0.00	0.00	0.01	0.02	0.00	0.01	0.00	−0.07				
15. Prior financial restatements	0.72	1.19	0.05	0.30	−0.07	0.20	0.29	−0.03	−0.10	0.07	0.07	0.00	−0.05	0.07	−0.09	0.03			
16. Special announcement	0.13	0.34	−0.13	0.02	−0.06	0.02	0.10	−0.02	−0.06	0.03	0.09	0.02	0.03	0.02	−0.05	−0.02	0.02		
17. Restated size	−4.26	37.87	0.02	0.00	0.14	−0.07	−0.23	0.01	0.02	−0.11	−0.07	−0.01	0.01	0.01	0.05	−0.12	−0.10	−0.04	
18. Auditor initiated	0.57	0.49	−0.02	0.20	−0.25	0.24	0.04	−0.06	−0.11	0.03	0.04	0.05	0.01	−0.01	−0.03	0.02	0.05	0.16	−0.04
19. SEC investigation	0.09	0.29	−0.05	−0.08	−0.01	−0.04	−0.02	−0.02	0.06	−0.02	0.02	0.01	0.04	0.01	−0.06	0.01	−0.07	0.13	0.00
20. Board approved	0.40	0.49	−0.08	0.07	−0.28	0.25	0.05	−0.04	−0.07	0.02	0.06	0.04	0.05	−0.02	−0.06	0.01	0.07	0.25	−0.08
21. Firm diversification	10.08	7.16	−0.01	0.06	−0.18	0.24	0.31	0.11	−0.11	0.15	0.13	0.09	0.07	−0.07	−0.22	0.05	0.19	0.03	−0.11
22. Firm size	5.13	1.81	−0.02	0.14	−0.15	0.17	0.41	0.18	−0.26	0.35	0.37	0.12	0.10	−0.11	−0.10	0.02	0.19	0.07	−0.21
23. Extremity of alliance announcements	0.18	2.14	−0.10	0.02	−0.02	0.00	−0.01	−0.01	0.07	−0.01	−0.02	0.01	0.00	−0.01	−0.03	−0.02	0.01	0.04	0.02
24. Frequency of alliance announcements	0.18	0.34	−0.11	−0.16	−0.13	0.02	0.07	0.17	−0.02	0.23	0.17	0.03	0.00	−0.02	−0.09	−0.01	−0.10	0.05	−0.07

Variables	18	19	20	21	22	23
19. SEC investigation	0.10					
20. Board approved	0.61	0.16				
21. Firm diversification	0.00	−0.10	0.05			
22. Firm size	−0.01	0.03	0.02	0.49		
23. Extremity of alliance announcements	0.06	−0.01	0.09	−0.04	0.01	
24. Frequency of alliance announcements	−0.01	0.06	0.04	0.18	0.28	0.06

TABLE 2
Salience of Alliance Announcements and Devaluation upon Financial Restatements

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Constant	−2.61	3.97	5.26	4.80	3.98	4.26	5.43	4.80	5.99
	(14.41)	(14.24)	(14.05)	(14.18)	(13.88)	(14.26)	(14.06)	(13.78)	(13.84)
Inverse Mills ratio	2.73	2.03	3.95	1.43	3.70	2.11	3.94	3.10	3.73
	(5.57)	(5.76)	(5.82)	(5.74)	(5.69)	(5.76)	(5.81)	(5.64)	(5.72)
After SOX Act	0.14	0.28	−0.16	0.08	−0.07	0.26	−0.16	−0.27	−0.45
	(6.97)	(6.70)	(6.38)	(6.64)	(6.46)	(6.72)	(6.40)	(6.41)	(6.31)
Firm age	−0.01	−0.00	−0.01	−0.00	0.00	−0.00	−0.01	0.01	−0.01
	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Fortune's Most Admired	−7.08	−2.20	−13.64*	−0.86	−16.27*	−2.31	−13.30*	−14.91*	−16.43*
	(5.26)	(8.50)	(6.82)	(9.00)	(6.94)	(8.47)	(6.60)	(6.64)	(8.08)
KLD missing	−0.34	0.10	−0.24	0.20	−0.15	0.09	−0.24	−0.04	−0.18
	(1.09)	(1.09)	(1.10)	(1.09)	(1.09)	(1.09)	(1.10)	(1.09)	(1.09)
CSR strengths	0.72†	0.92*	0.66	0.96*	0.88*	0.91*	0.66	0.91*	0.73†
	(0.39)	(0.42)	(0.41)	(0.43)	(0.45)	(0.42)	(0.41)	(0.45)	(0.42)
CSR concerns	−0.23	0.05	−0.13	0.14	0.04	0.08	−0.11	0.12	0.01
	(0.69)	(0.70)	(0.69)	(0.71)	(0.70)	(0.70)	(0.69)	(0.70)	(0.70)
Firm recent performance	−0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Price-to-earnings ratio	−0.00	−0.01	−0.00	−0.01	−0.00	−0.01	−0.00	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Firm slack	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Firm liquidity	−0.07	−0.10	−0.10	−0.09	−0.11	−0.11	−0.11	−0.10	−0.10
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Extraordinary items	0.87**	0.82*	0.81**	0.84**	0.81**	0.81*	0.80**	0.83**	0.82**
	(0.31)	(0.33)	(0.31)	(0.32)	(0.30)	(0.33)	(0.31)	(0.30)	(0.30)
Prior restatements	0.43	0.36	0.45	0.40	0.42	0.37	0.45	0.46	0.51
	(0.51)	(0.53)	(0.52)	(0.53)	(0.53)	(0.52)	(0.52)	(0.53)	(0.52)
Special announcement	−4.60†	−4.45†	−4.05†	−4.57†	−4.36†	−4.34†	−3.99†	−4.48†	−4.16†
	(2.44)	(2.38)	(2.35)	(2.38)	(2.34)	(2.34)	(2.32)	(2.34)	(2.32)
Restated size	0.01	0.01	0.01†	0.01	0.01	0.01	0.01†	0.01	0.02†
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Auditor initiated	0.18	0.05	0.09	0.21	0.22	0.01	0.06	0.38	0.30
	(1.34)	(1.33)	(1.31)	(1.34)	(1.30)	(1.33)	(1.31)	(1.31)	(1.30)
Board approved	−2.44*	−2.13†	−2.39†	−2.32†	−2.21†	−2.10†	−2.36†	−2.40*	−2.54*
	(1.22)	(1.22)	(1.22)	(1.24)	(1.21)	(1.22)	(1.23)	(1.22)	(1.25)
SEC investigation	−0.77	−0.63	−0.70	−0.28	−0.65	−0.64	−0.70	−0.30	−0.34
	(1.74)	(1.70)	(1.67)	(1.67)	(1.67)	(1.68)	(1.65)	(1.65)	(1.61)
Firm diversification		−0.01	−0.01	−0.00	−0.13	−0.01	−0.01	−0.12	−0.07
		(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.08)	(0.09)	(0.09)
Firm size		−0.11	−0.50	−0.19	−0.10	−0.13	−0.50	−0.18	−0.49
		(0.34)	(0.37)	(0.34)	(0.34)	(0.35)	(0.37)	(0.34)	(0.38)
Frequency of alliance announcements		−4.17†	−21.20**	−4.57*	−13.74**	−4.00†	−20.45**	−14.13**	−21.90**
		(2.22)	(6.93)	(2.20)	(5.05)	(2.21)	(6.97)	(5.10)	(6.75)
Extremity of alliance announcements		−0.58*	−0.60†	−1.73**	−0.52†	−1.32	−1.16	−1.67**	−2.29**
		(0.27)	(0.33)	(0.36)	(0.28)	(0.88)	(0.89)	(0.32)	(0.78)
Frequency of alliance announcements × Firm size			2.53**				2.43**		1.87*
			(0.81)				(0.81)		(0.89)
Extremity of alliance announcements × Firm size				0.26**				0.26**	0.27**
				(0.08)				(0.08)	(0.09)
Frequency of alliance announcements × Firm diversification					0.70**			0.70**	0.35
					(0.25)			(0.25)	(0.28)

TABLE 2
(Continued)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Extremity of alliance announcements × Firm diversification						0.06 (0.06)	0.05 (0.06)		0.04 (0.06)
Log likelihood	−2832	−2825	−2817	−2822	−2819	−2823	−2816	−2816	−2812

Notes: Standard errors in parentheses. Coefficients of year and industry dummies omitted.
$^{\dagger}p < 0.10$
$^{*}p < 0.50$
$^{**}p < 0.01$

shows that the association of CAR with the restating firm's frequency of alliance announcements is much steeper for small firms (–1 *SD*) than for large firms (+1 *SD*).

Furthermore, we examined the range over which the interaction holds. To do so, we followed recent research and tested the ranges of firm size in which the marginal effect of the announcements' frequency is significant (Brambor, Clark, & Golder, 2006; King, Tomz, & Wittenberg, 2000). In particular, we used the Johnson–Neyman technique to identify the range of the moderator variable for which the main variable has a significant effect on the dependent variable. The main variable has a significant effect on the dependent variable if its 95% confidence intervals do not include 0. The result of this analysis for the interaction of a firm's frequency of alliance announcements and its size is presented in the right panel of Figure 1A. The *x*-axis is the moderator and covers the whole range of firm size (i.e., log-transformed total assets). The plot shows that a firm's number of alliance announcements is significant for firms in the size range up to 6.7, which is equivalent to approximately 800 million USD in assets. This indicates that for firms with more than 800 million USD in assets, the frequency of alliance announcements does not have any effect on investors' reactions to irregular financial restatements. For firms with less than 800 million USD in assets, the smaller the firm, the more heavily it is penalized for irregular financial restatements at the same frequency of alliance announcements. These results provide support for Hypothesis 3.

Model 4 includes an interaction term between the extremity of alliance announcements and firm size. The coefficient of the interaction is positive and significant ($\beta_3 = 0.26$; $p < 0.01$). The interaction effect and the associated range of interactions using the Johnson–Neyman technique are presented in the left and right panels of Figure 1B, respectively. The interaction effect in the left panel shows that the decreases in CAR associated with the extremity of alliance announcements is steeper for smaller firms than for larger firms. The right panel shows that the interaction effect is significant for firms with less than 150 million USD in assets. Among firms with extreme alliance announcements, the smaller the firm the more negative the investor reaction to irregular financial restatements. Thus, Hypothesis 4 is supported.

Model 5 includes the interaction term between the restating firm's frequency of alliance announcements and level of diversification. The coefficient for this term is positive and significant ($\beta_3 = 0.70$; $p < 0.01$). The left panel of Figure 2 confirms this result, showing that the association of CAR with a restating firm's frequency of alliance announcements is much steeper for less diversified firms (–1 *SD*) than for more diversified firms (+1 *SD*). That is, investor reactions to irregular financial restatements associated with a restating firm's number of alliance announcements are more negative for less diversified firms than for more diversified firms. Again, we analyzed the range of firm diversification where the interaction is significant. The right panel of Figure 2 shows that the interaction between a firm's scope and number of alliance announcements prior to its restatement is significant for all values of firm scope below 15. These results indicate that the frequency of alliance announcements does not significantly influence investors' reactions to irregular financial restatements for firms that are highly diversified (i.e., operate in more than 15 industry segments). However, for less diversified firms an increase in the frequency of alliance announcements results in much steeper negative CAR for firms as the extent of diversification decreases. These results support Hypothesis 5.

FIGURE 1A
Interaction between Salience of Alliance Announcements and Firm Size: Frequency of Alliance Announcements × Firm Size

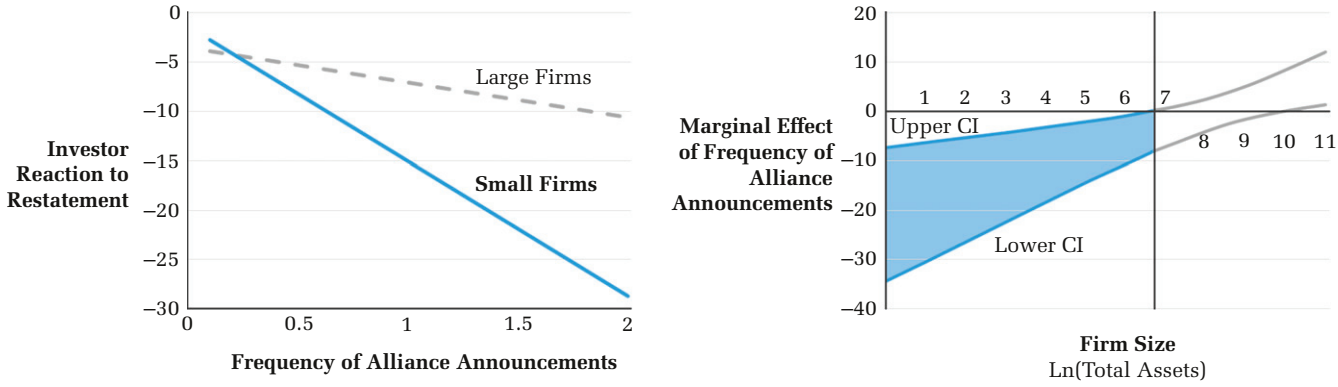
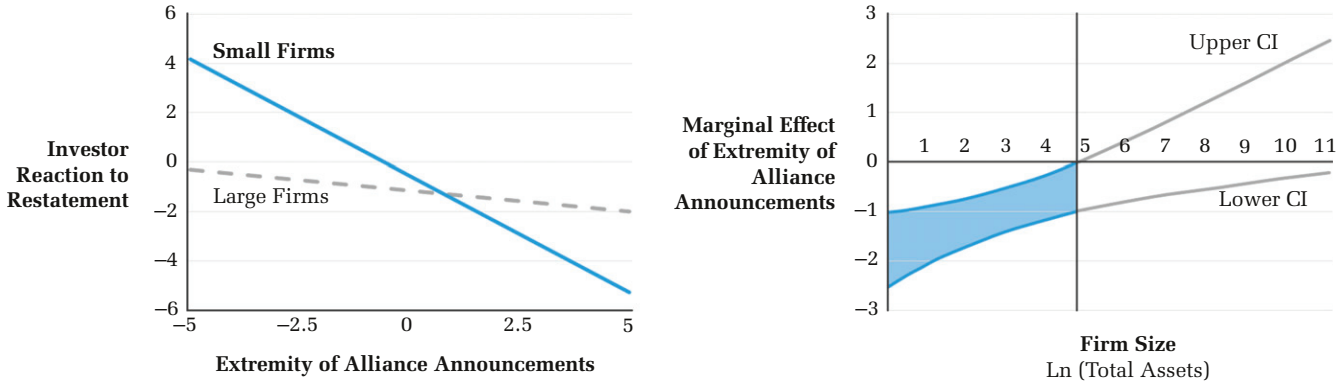


FIGURE 1B
Interaction between Salience of Alliance Announcements and Firm Size: Extremity of Alliance Announcements × Firm Size



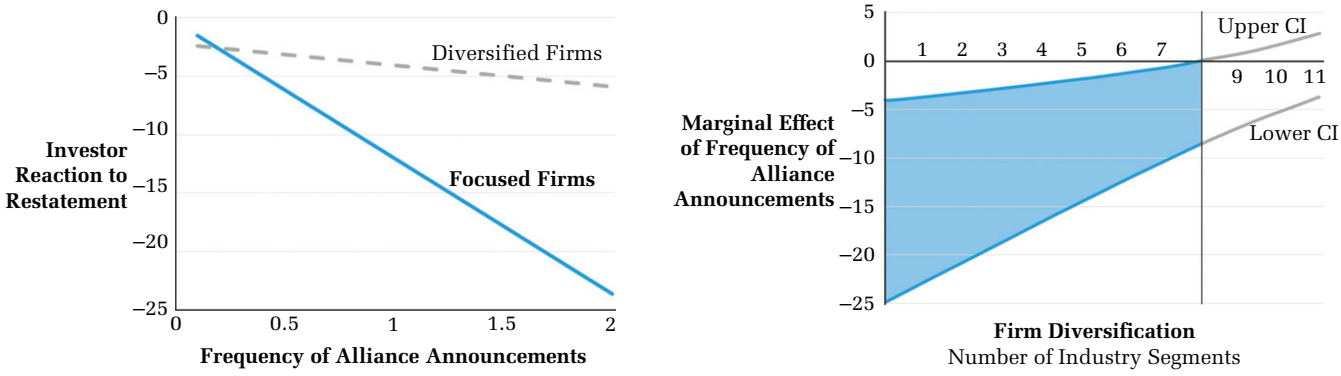
The interaction term between extremity of alliance announcements and firm diversification is presented in Model 6. The interaction term is positive, but not significant. Thus, Hypothesis 6 is not supported.

To test the robustness of these results, we included two interactions with distinct terms in the same model specification so as not to be affected by multicollinearity from having multiple interaction terms with the same component. The results presented in Models 7 and 8 are identical to those presented in Models 3–6. Lastly, Model 9 includes four interaction terms along with the main effect terms. Because of the overlapping components in these interaction terms, the highest VIF in this model is 38, which is well above the cut-off point of 5. This multicollinearity increases standard errors in the estimation even though they do not affect the coefficient estimates (Greene, 2003), leading to nonsignificant results. Consequently, we refrain from interpreting the results of this model specification.

Robustness Checks

We performed several tests to examine the robustness of our findings. First, we repeated the analysis using longer time windows to check. The results of the analyses of CAR for event windows $[t-2, t+3]$ to $[t-2, t+9]$ were consistent. The analysis using event window $[t-2, t+10]$ yields results that started to differ from the original results: the main effect of frequency of alliance announcements and the interaction between extremity of alliance announcements and firm size became nonsignificant.

FIGURE 2
Interaction between Frequency of Alliance Announcements and Firm Diversification



When using longer event windows, $[t-2, t+15]$ and $[t-2, t+20]$, the results became even more unstable: all hypothesized effects regained the same levels of significance as in the original analysis except for the main effect of extremity of alliance announcements when using the $[t-2, t+15]$ window, and only the main effect of frequency of alliance announcements and its interaction with firm size and diversification became significant at $p < 0.10$ when using the $[t-2, t+20]$ window. These unstable results, however, are to be expected because using event windows that are too long (e.g., greater than 10 days) risks contaminating the effect of interest through confounding events, resulting in insufficient reliability of statistical inferences (Gomulya & Boeker, 2014; McWilliams & Siegel, 1997).

Second, we performed our analysis using different discount factors, the square and square root of the number of months from alliance announcement to the irregular financial restatement (Baum & Ingram, 1998). The results were broadly consistent with those presented earlier, except that the main effect of alliance announcements frequency becomes nonsignificant and the significance levels of the hypothesized interaction effects deteriorate slightly.

Third, prior research has shown that alliances sometimes devolve into learning races and other competitive contexts (Anand & Khanna, 2000; Khanna, Gulati, & Nohria, 1998). Although this may not always be the case, it is possible that investors take such aspects into consideration, meaning that not all alliance announcements are perceived as equally positive capability signals. Thus, we performed additional analysis by distinguishing alliances with competitors (defined by both partners having the same three-digit SIC code) from those with other firms. The results of these analyses showed that the pattern of results is stronger for alliances with noncompetitors than for alliances with competitors.

DISCUSSION

Whereas prior research on signal incongruence has primarily focused on intradimensional incongruences, we expanded this theoretical inquiry to the case where audiences come to assess interdimensional incongruences between salient positive capability signals and negative integrity signals. Our analysis of irregular financial restatements issued by software firms and chemical and pharmaceutical firms supports our central premise that investors react more negatively to restatements when higher salience of alliance announcements creates greater incongruence. We found that a one standard deviation increase in the frequency and extremity of alliance announcements increases the penalties imposed by investors for irregular financial restatements by about 1.58% and 1.19%, respectively.

We also found that the negative effect of alliance announcement salience is moderated by firm size and diversification. As shown in Figure 1, we found that the negative association between investor reactions and both forms of salience of prior alliance announcements is stronger for smaller firms than for larger firms. The frequency and the extremity of prior alliance announcements do not have any effects on firms with assets greater than 1 billion and 100 million USD, respectively. For smaller firms, an increase in the salience of prior alliance announcements results in decreased CAR upon their restatements. In addition, as shown in Figure 2, the negative association between investor reaction to restatements and the

frequency of prior alliance announcements is stronger for less diversified firms than for more diversified firms. The frequency of prior alliance announcements does not influence investor reactions as measured by CAR when a firm operates more than four different businesses. However, for less diversified firms, an increase in the frequency of alliance announcements decreases a firm's CAR when irregular financial restatements are issued.

Contributions to the Signaling Theory Literature

Our results have theoretical implications for several streams of research. Our paper extends the emergent stream of signaling theory research that has explored how audiences process a set of homogenous signals and their incongruence along the same evaluative dimension (Connelly et al., 2011; Drover et al., 2018; Stern et al., 2014; Vergne et al., 2018). We extend this stream by developing a generalized framework for thinking about different kinds of incongruence—one that is interdimensional. A set of research opportunities arises in considering the different types of interdimensional incongruences. Although we considered interdimensional incongruence between negative integrity signals and positive capability signals, another form of incongruence may arise between negative capability signals and positive integrity signals. Although we expect negative capability signals to be less likely to spark incongruence compared to negative integrity signals (Fiske et al., 2007; Mishina et al., 2012), future research could explore the dynamics in this form of interdimensional incongruence and compare these dynamics with those presented in this article. In addition, our framework provides a way to think about other forms of interdimensional incongruence. For instance, in the future researchers could investigate the types of incongruity created by other classifications of dimensions.

We also extend this research stream by theorizing a novel way in which audiences resolve the signal incongruence. Prior findings have suggested that audiences' reactions to the intradimensional incongruence are somewhat capricious. Some have argued that the incongruent signals cancel each other out and altogether become ineffective (Stern et al., 2014; Zhao & Zhou, 2011), whereas others have posited that audiences make sense of the incongruence by disproportionately weighting either positive or negative signals, depending on the context (Gomulya et al., 2019; Lungeanu et al., 2018; Vergne et al., 2018; Zavyalova et al., 2016). We proposed a distinct mechanism for resolving interdimensional incongruence. Interdimensional incongruence caused by negative integrity signals and positive capability signals leads to a clear-cut negative reaction by audiences to the salience of capability signals because integrity signals have primacy over, and potentially mar, capability signals, according to the social evaluations research (Fiske et al., 2007; Mishina et al., 2012; Stellar & Willer, 2018; Wojciszke et al., 1998). In other words, different from the varying ways through which audiences deal with intradimensional incongruence, interdimensional incongruence is dealt with clarity; by introducing additional punishments proportionate to the salience of the incongruent signals.

Specifying different types of signal incongruence reveals several additional research avenues. For instance, some signals could be exogenously defined, rendering them unsusceptible to firms' discretion and thus damaged credibility (Connelly et al., 2011; Gomulya & Mishina, 2017). Because these signals are likely to be less affected by the tarnished credibility of a firm itself as a signaler following misconduct (Connelly et al., 2011), researchers could investigate how audiences resolve these types of incongruence. In a similar vein, we chose negative integrity signals in which firms' intentions are likely involved (i.e., irregular financial restatements), rather than mere errors or mistakes, since culpability is a key factor in audiences' processing of misconduct (Bundy & Pfarrer, 2015). Future research could explore whether incongruence arises for errors and mistakes as well, and find the boundaries where such effects cease.

Contributions to the Social Evaluations Literature

Our findings hint at an interesting divergence in how firms and stakeholders prioritize capabilities and integrity as evaluative dimensions. Prior research has suggested that firms are often obsessed with meeting stakeholders' expectations regarding their capabilities and performance, even at the cost of committing misconduct (Greve et al., 2010; Mishina, Dykes, Block, & Pollock, 2010). However, stakeholders may place greater emphasis on firms' integrity, such that transpiring integrity issues override previously formed positive capability judgments because judgments about one's integrity and morality have primacy over judgments about capability and competence (Fiske et al., 2007; Stellar & Willer, 2018; Wojciszke et al., 1998). That is, whereas firms

may prioritize their evaluations on the capability dimension, stakeholders may hold more exigent standards on the integrity dimension (Connelly et al., 2016). Such prioritization by firms may be misplaced, as investors—a critical stakeholder group—were found in our study to prioritize integrity issues over capability issues.

This is an important advancement in our understanding of how audiences incorporate capability and integrity dimensions in their evaluation of firms. Although prior research has long established the significance of these two dimensions in social evaluations (Fiske et al., 2007; Wojciszke et al., 1998), integrity and capability judgments have rarely been considered in tandem, leading to dissociated scholarly efforts in only one of the dimensions, or, more importantly, the theorization of these two dimensions as having orthogonal effects in social evaluations (Bhattacharjee et al., 2013; Mishina et al., 2012; Stellar & Willer, 2018). We reinstated the overwhelming importance of integrity in the functioning of markets and demonstrated that the superior capabilities firms present, which are often accorded greater attention in both practice and research, can readily be undermined with the revocation of firms' assumed compliance with social and ethical norms.

These findings raise several questions for future research. For instance, because questions about a firm's capability will not necessarily raise doubts about its ethical character, future research could examine whether and how internal stakeholders such as managers and employees react to this type of incongruence, and compare this to their reactions to the incongruence we studied. Additional research questions may include exploring the case where incongruity is created by newly generated positive capability signals when the firm's integrity issues are already salient. How do audiences perceive the demonstration of superior capability by unethical firms? Do audiences and internal actors respond similarly or differently in such situations? Researchers could also explore how those reactions are comparable to those we studied in this paper.

Contributions to the Organizational Misconduct Literature

Prior studies on financial misconduct have primarily focused on the effect of perpetrator firm characteristics on stakeholder reactions (Kang, 2008; Paruchuri & Misangyi, 2015). Firm characteristics that have been studied include different types of firm economic indicators—at the time of restatement—generated from continuous firm operations such as prior performance, slack, and size. We extend this research by adding a different dimension: salience of prior alliance announcements. Alliance announcements are indicators of new strategic initiatives undertaken by firms. Investors respond immediately to these initiatives, as evidenced by the positive stock market returns in response to such announcements, despite outcomes from these initiatives not immediately being realized. We find that investors' negative reactions to the restatements are aggravated by the salience of these prior alliance announcements. These findings suggest that the salience of other kinds of firm initiatives could also alter investor reactions. Thus, in the future researchers could investigate how investors' reactions to financial restatements are shaped by the salience of internal (e.g., corporate restructuring or research and development initiatives) (Eisenman & Paruchuri, 2019; Nerkar & Paruchuri, 2005; Paruchuri & Eisenman, 2012) and external strategic initiatives (e.g., new product launches, diversifying entries, or mergers and acquisitions) (Lee & Paruchuri, 2008; Paruchuri, Nerkar, & Hambrick, 2006). Comparing the effects of different types of initiatives on investor reactions to financial restatements should be promising. Future research could also examine whether these effects change in light of the external shocks (Paruchuri, Baum, & Potere, 2009; Paruchuri & Ingram, 2012).

Contributions to the Strategic Alliance Literature

Our findings also have implications for research on alliance announcements. Prior research on alliances has focused on the benefits of alliances and positive investor reactions to their announcements (Anand & Khanna, 2000; Das et al., 1998; Woolridge & Snow, 1990). Rarely have researchers considered the possibility that the signals from alliance announcements can change. For instance, Park and Mezias (2005) argued that investors value alliance announcements less when environmental munificence is high because alliances signal firms' inability to operate independently. We extend this argument by demonstrating that the salience of prior alliance announcements actually has a negative effect when such announcements are followed by the firm's own misdeeds. Among the first of their kind, our findings open up new avenues for exciting future research on cases in which these positive sentiments from alliance announcements sour and cause more harm. Although we focused on financial restatements, scholars could examine the

effects of different factors that could mar these positive sentiments.

Limitations and Future Research Opportunities

As is the case with most studies, ours has some limitations that could form avenues for future research. First, we theorized the undermining of the integrity of firms' prior capability signals as the driver of aggravated audience reactions to the firms' misconduct. However, alternative mechanisms may be at play regarding how the interplay between integrity and capability judgments materialize as intensified devaluation. For instance, it might be the case that the distraction of audiences' attention away from prior positive capability signals due to the salience of a current integrity violation drives devaluation; or it might be the salience of prior capability signals drawing greater attention to the integrity violation that drives penalties for the violation. Although we believe our mechanism best reflects the phenomenon—because integrity violations prevent audiences from taking firms' capability claims at face value (Gomulya & Mishina, 2017) and attract punitive reactions even without positive capability signals—it is also true that the actual mechanism cannot be readily captured by our empirical approach. Thus, future research could benefit from delving into the microfoundations of audiences' resolution of the incongruence between negative integrity signals and prior positive capability signals through experimental (Stellar & Willer, 2018) or policy-capturing methods (Connelly et al., 2016).

Second, although we focused on a specific type of misconduct that has straightforward implications for firms' integrity judgments (i.e., financial restatements) to gain a clear understanding of the phenomenon (Harris & Bromiley, 2007), researchers could examine more ambiguous forms of misconduct, as well as errors and accidents (Paruchuri, Pollock, & Kumar, 2019; Rhee & Haunschild, 2006; Zavyalova et al., 2012). Third, while we focused exclusively on investor reactions in this paper, exploring whether these mechanisms and effects also apply to other stakeholders, such as customers, employees, the media, and bondholders, may be promising. Fourth, we focused on salience as shaped by the frequency and extremity of alliance announcements, as this represents the beginning of this line of investigation. Researchers could explore how these effects change with alliance characteristics. Finally, we chose the chemical and pharmaceutical industry and the software industry as the context for this study, building on insights from prior research that alliances are critical for firms in those industries. Thus, it would be beneficial to examine whether our theory and findings generalize to other industries where alliances are not as important, as well as to other capability signals.

CONCLUSION

We have shown that the magnitude of investor reaction to negative integrity signals or corporate misconduct is influenced by the magnitude of interdimensional incongruence between a negative integrity signal and salient prior positive capability signals. All in all, our theory and findings imply that firms' attempts to make their superior capabilities salient can become futile, if not inimical, if the integrity standards held by audiences are not satisfied. By bridging the literatures on signaling theory, social evaluations, organizational misconduct, and alliances, we aim to open up several exciting avenues for future research. We hope scholars will further develop the insights generated in this article to enrich our understanding of the dynamics at the intersection of these different streams of research.

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