

Competence- and Integrity-Based Trust in Interorganizational Relationships: Which Matters More?

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Trust is an important factor for managing transaction costs within interorganizational relationships (IORs). Research on trust indicates that separate dimensions of trust arise from a partner's competence (i.e., technical skills, experience, and reliability) and integrity (i.e., motives, honesty, and character), and that these dimensions have potentially unique effects. Because scholars rarely apply this distinction within IOR research, past studies may have masked important relationships involving competence- and integrity-based trust. In response, we build and test theory that explains how competence- and integrity-based trust have asymmetric effects on different kinds of transaction costs. In particular, we build on theory that describes how parties process positive and negative information about others' behavior to predict that integrity-based trust in IORs is more potent for reducing transaction costs than is competence-based trust. We also theorize that building strong IORs requires more up-front investment with competence-based but not with integrity-based trust. By applying meta-analytic structural equation modeling to data on 37,366 IORs drawn from 150 samples, we find that integrity-based trust is about 10 times more effective at reducing these costs. A key implication is that managers seeking to improve the efficiency of their IORs may do well by performing competently, but they can do even better by building perceptions of integrity.

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Imagine a firm is looking for a strategic partner to manufacture widgets, and two options come to the fore. Company A has a long history of manufacturing widgetlike devices on time at low cost, but its leadership team has also been accused of unethical behavior, such as treating employees poorly and not being entirely truthful with partners and customers. Alternatively, the firm could partner with Company B, whose leadership team is known for dealing in an honest and transparent manner, but they have never made widgetlike devices, and they have not been the most reliable partner in manufacturing to date.

Which company should the firm choose as a strategic partner? How will concerns about Company A's ethics and Company B's abilities shape the decision? Research on the dimensionality of trust could help frame the answer to such questions. *Competence-based trust* is an expectation that a partner has the technical skills, experience, and reliability needed to fulfill its obligations (Lui & Ngo, 2004). Expectations of reliable performance built over time drive this kind of trust in one's partner (Lee, 2004; Whipple & Frankel, 2000). In the above scenario, Company A inspires high levels of competence-based trust, but Company B does not.

In contrast, *integrity-based trust* is rooted in perceptions about a partner's motives, honesty, and character (Sitkin & Roth, 1993). The emphasis here is on social and attitudinal underpinnings of the relationship (Mayer, Davis, & Schoorman, 1995). Company B inspires high levels of integrity-based trust, but Company A does not. Thus, these two forms of trust represent distinct constructs that develop at different rates and for different reasons (Bachmann, 2001; Snyder & Stukas, 1999). Our hypothetical firm must decide whether to create an interorganizational relationship (IOR) with Company A that would be marked by high competence-based trust and low integrity-based trust or choose Company B and have low competence-based trust along with high integrity-based trust.

A large and growing body of research suggests that trust is an important consideration within IORs (Lumineau, 2017) because trust reduces transaction costs by making negotiating agreements more efficient (Das & Teng, 1998), simplifying dispute resolution (Poppo & Zenger, 2002), and facilitating mutual adjustment to changing environmental conditions (Hitt, Ahlstrom, Dacin, Levitas, & Svobodina, 2004). Although these studies yield important insights about the relationship between trust and transaction costs, one shortcoming of this line of inquiry is that it tends to adopt a monolithic view of trust (Dyer & Chu, 2003; Jeffries & Reed, 2000). Not accounting for the dimensionality of trust could mask important differences. Under a monolithic view of trust, both Companies A and B could be seen as moderately trustworthy, but these firms clearly have important differences.

Trust scholars offer insights about the differences between competence-based and integrity-based trust that could be informative for understanding their respective and unique influences on transaction costs within IORs. Numerous lab and field studies provide evidence that there are inherent differences in the way people assess information about competence as

compared to integrity (Kim, Diekmann, & Tenbrunsel, 2003; Reeder, Hesson-McInnis, Krohse, & Scialabba, 2001). For example, people are likely to consider a single integrity failure to be an indicator of a dishonest partner, but they do *not* consider a single competence failure to be an indicator of incompetence (Kim, Ferrin, Cooper, & Dirks, 2004). Moreover, people tend to generalize information about integrity across domains¹ of a relationship, but information about a partner's competence is more likely to be domain specific (Connelly, Miller, & Devers, 2012). Whereas trust based on integrity implies a reduced threat of opportunism, competence-based trust does not (Lui & Ngo, 2004). Understanding such asymmetric properties could be important to determining the extent to which these two different kinds of trust are useful for minimizing IOR transaction costs.

We draw upon these asymmetric properties to offer two theoretical contributions. First, although trust researchers acknowledge that competence and integrity operate uniquely, few consider the relative magnitude of their effects. This could be especially important to IOR research because these two forces could compete with each other, work in tandem, or one could dominate the other. Thus, we develop theory to explain why integrity-based trust is more consequential for reducing transaction costs once an IOR is in place. Second, theory and evidence show that, because they can be mutually reinforcing, trust and the complexity of IOR contracts tend to rise together (Schepker, Oh, Martynov, & Poppo, 2014). This theory about the complementarity of trust and contracts has implications for IOR transaction costs because it suggests that trusting IOR partners invest in transaction costs up front in order to garner high levels of cooperation. We extend theory in this area to suggest that IOR partners take on such up-front investments in transaction costs when they have competence-based trust in their partner but not when they have integrity-based trust.

Furthermore, our study offers an empirical contribution by consolidating prior findings about relationships among different trust dimensions and transaction costs and offering a strong statistical test of our theory using an emerging, novel methodology. Specifically, we use meta-analytic structural equation modeling (MASEM) to consolidate findings from 150 samples encompassing 37,366 organizations engaged in IORs. In contrast to typical meta-analyses, MASEM affords high levels of confidence of both external validity (based on large amounts of data) and internal validity (based on testing full models and specifying the direction of effects; Carney, Gedajlovic, Heugens, Van Essen, & Van Oosterhout, 2011). This approach also facilitates relative importance analysis, which motivates our study.

Findings reveal that the transaction costs involved in managing ongoing IOR relationships are low when either competence- or integrity-based trust is high. Also, consistent with theory about how trust affects contracting, competence-based trust is associated with high levels of transaction costs involved in setting up IOR agreements, but integrity-based trust has the opposite effect. High trust (of either kind) decreases IOR transaction costs that occur after the partners establish contracts, but competence-based trust increases, and integrity-based trust decreases, the transaction costs of initial contracting. We discuss what our results could mean for IOR and trust researchers and describe their practical implications in terms of what we call a "trust ROI" (return on investment; Aguinis, Werner, Abbott, Angert, Park, & Kohlhausen, 2010). Returning to our opening vignette, our results mean that the benefits created by the integrity-based trust of Company B should outweigh the benefits arising from the competence-based trust offered by Company A.

Conceptual Development

Transaction Costs

IORs are an essential element of most organizations' strategies. According to the *Economist* (2009), Fortune 500 firms have an average of 50 to 70 IORs, and some firms, such as IBM, have several hundred. Not surprisingly, how IORs are managed affects performance (Crook, Combs, Ketchen, & Aguinis, 2013). Successfully managing IORs requires controlling the transaction costs involved in finding qualified partners, negotiating agreements with them, monitoring those agreements, and dealing with unanticipated changes (Williamson, 1985). If these costs become excessive, it undermines performance and increases the chances that the IOR will dissolve (Ireland, Hitt, & Vaidyanath, 2002).

Our predictions about IORs revolve around two types of transaction costs: ex ante and ex post transaction costs. Many studies lump these two types of transaction costs together, but Williamson (1985) theorized that ex ante and ex post transaction costs are separate expenses. Scholars have generally acknowledged that these costs uniquely contribute to IOR efficiency (e.g., Barthélemy & Quélin, 2006; Burgers, Hill, & Kim, 1993). We consider them separately in order to examine the unique transaction costs associated with establishing an IOR and maintaining the IOR.

Ex ante transaction costs are costs of doing business that are absorbed before an IOR is established, such as the costs arising from negotiating agreements and establishing contractual safeguards (Williamson, 1985). These costs are incurred to protect each side's interests, anticipate contingencies, and specify how adaptations to unanticipated changes will occur. In general, contracts are costly to negotiate and write, so the more parties demand detailed and complex contracts the more ex ante transaction costs grow (Williamson). Some researchers include the costs associated with search and selection of IOR partners as ex ante transaction costs. However, our study focuses on the negotiation costs that occur once a firm selects a partner because there is no interorganizational trust until there are two specific exchange partners (Mellewigt & Decker, 2014). Ex post transaction costs, in contrast, are ongoing expenses related to monitoring exchange partners, haggling when unanticipated changes arise, operating dispute resolution mechanisms, bonding to secure ongoing commitments, and "maladjustment" costs that arise when actors are forced to abide by contract terms that are no longer in their best interest (Williamson).

Trust

Given that IOR partners cannot specify in formal contracts much of what they seek from each other, it is perhaps not surprising that research has found that trust in one's partner is essential for IOR success (e.g., Gulati & Nickerson, 2008; Woolthuis, Hillebrand, & Nooteboom, 2005). Much of this work grew within a literature stream focused on cooperative strategies among firms. These studies typically have not incorporated the view that competence and integrity are separate dimensions of trust, a notion that grew out of a different stream of literature (Rousseau, Sitkin, Burt, & Camerer, 1998). Despite their conceptual aggregation, many studies use operationalizations that allow competence- and integrity-based trust to be separated, facilitating a meta-analytic assessment.

Competence-based trust refers to the expectation that an IOR partner is able to fulfill its specified obligations (Cook & Wall, 1980; Lui & Ngo, 2004). Trust in one's partner, for this

dimension, is driven by expectations of technically proficient performance, functional skill born from time and experience, and perceived reliability (Lee, 2004; Whipple & Frankel, 2000). This is consistent with Williamson's (1993) theorizing wherein trust is based on a trustor's prior experience with a trustee's performance of their responsibilities. Competence-based trust between IOR partners focuses on the instrumental motives that drive partner behavior (Axelrod, 1984). Actors are presumed to make rational, efficient choices in an effort to maximize expected gains (Williamson). Therefore, a partner will be perceived as trustworthy only if adequate rational grounds exist for believing that the partner is competent and reliable (Hardin, 1992), such as repeated cycles of exchange wherein expectations have been fulfilled (Inkpen & Currall, 2004).

In contrast, integrity-based trust is rooted in perceptions about a partner's motives, honesty, and character (Kramer, Brewer, & Hanna, 1996). The emphasis here is on a relational perspective wherein partners focus on the social and attitudinal underpinnings of the IOR (Kramer & Tyler, 1996; Mayer et al., 1995). Transactions within IORs are generally guided by a complex web of values and behavioral motives. Integrity-based trust arises to the extent that there is alignment of values and motives between the partners (Tyler & Degoey, 1996). When exchange partners differ in values and motives, this undermines confidence and erodes integrity-based trust (Lewicki, McAllister, & Bies, 1998). In fact, even a single act demonstrating a lack of honesty can severely undermine this dimension of trust (Kramer, 1994; Searle & Ball, 2004).²

A key consideration is that competence- and integrity-based trust are separate constructs that may coexist in a single IOR (Kim et al., 2004). A lack of integrity-based trust does not necessarily mean that a firm will deem their IOR partner to be incompetent (Ferrin, Kim, Cooper, & Dirks, 2007). Conversely, there is little reason to suspect that low levels of competence-based trust that arise from poor performance would cause a firm to suspect that their IOR partner had ill intent (Kim et al.). This is because these two dimensions of trust develop at different rates and for different reasons and are likely to move somewhat independently of each other (Janowicz-Panjaitan & Krishnan, 2009; Long & Sitkin, 2006). Thus, it is informative to consider their relative influence.

Hypotheses

Trust and Ex Post Transaction Costs

Much of the IOR literature draws inspiration from transaction cost economics' (TCEs') assumptions about partners' self-serving intentions (Geyskens, Steenkamp, & Kumar, 2006). The preponderance of IOR research adopts this premise, arguing that many parties involved in IORs operate under the general suspicion that their partners may take opportunistic actions that benefit themselves at the expense of others. As a result, IORs are grounded in fundamental assumptions of suspicion, such that integrity-based trust must be built up from presumptions of potential opportunism (Larsson, Bengtsson, Henriksson, & Sparks, 1998; Luhmann, 1979). TCE research, therefore, argues that a generalized threat of exploitation stimulates the perceived need for governance mechanisms (Connelly et al., 2012; Williamson, 1985). When establishing an IOR, firms develop complex contractual arrangements to safeguard from opportunistic actions and enforce mutually agreed behaviors. Once an IOR is created, however, firms have the opportunity to begin increasing the integrity-based trust that is inherently lacking in newly established IORs.

This can improve the nature of ongoing exchange (i.e., reducing ex post transaction costs) in at least two ways. The first is by reducing the need for costly monitoring. For example, when integrity-based trust increases, reviews and audits are likely to be less frequent, and those that do occur may be less rigorous and time-consuming (Ryall & Sampson, 2009). Integrity-based trust thus reduces concerns about potential exploitation and the amount of monitoring that is needed. The second is by allowing disputes to be more readily resolved (Kramer, 2006). When conditions surrounding an exchange relationship change, IOR partners will no doubt incur costs associated with renegotiating commitments, changing roles and responsibilities, and engaging penalties or even rights to terminate. However, beliefs about strong character minimize the haggling necessary to adapt the IOR so that both firms view the changes as fair (Dyer & Chu, 2003). Positive expectations about the partner's intentions reduce relational concerns, facilitate more transparent communication, and create a deeper commitment to the common good.

The effects of competence-based trust on ex post transaction costs are likely to parallel those of integrity-based trust. Once an IOR is established, a firm's increasing confidence in its partner's technical skill and task reliability reduces the need to constantly monitor the partner's behavior (Lee, 2004). As partners become increasingly dependable, the firm can reduce its emphasis on control activities, such as reviews and audits, and increasingly rely on evaluation of deliverables and outcomes (Inkpen & Currall, 1997). When competence-based trust is high, there should also be fewer quarrels over job performance and, thus, less costs associated with dispute resolution and maladjustment. Overall, empirical TCE research broadly supports the notion that positive expectations about a partner's reliability based on prior performance yields more efficient transactions (Gulati, 1995; Zaheer & Venkatraman, 1995). This suggests that higher levels of competence-based trust are associated with lower levels of ex post transaction costs.

These arguments lead us to hypothesize the following:

Hypothesis 1a: Within IORs, integrity-based trust is negatively related to ex post transaction costs.

Hypothesis 1b: Within IORs, competence-based trust is negatively related to ex post transaction costs.

The prior hypotheses put forward two ways of reducing ex post transaction costs: by demonstrating one's competence and by improving perceptions of integrity. This raises the logical question: What are the relative influences of competence- and integrity-based trust on the reduction of ex post transaction costs? We theorize that integrity-based trust is a more powerful driver.

To explain this, we rely on theory about how managerial attributions of competence and integrity are asymmetrically influenced by hierarchically restrictive schemas (Ferrin et al., 2007; Reeder & Brewer, 1979). In a hierarchically restrictive schema, people assume that having an attribute at one end of a continuum will restrict behavior but being at the other end will not. For competence, people intuitively believe those with high competence are capable of performing well or performing poorly, but those with low competence are capable only of performing poorly (Kim et al., 2003; Martijn, Spears, Van der Pligt, & Jakobs, 1992). Thus, positive information about a partner's performance suggests they are competent because an incompetent partner could not achieve competence. On the other hand, poor performance on

a task does not necessarily imply incompetence because a competent partner might perform poorly on occasion.

The opposite is true for integrity. People intuitively believe that those with high integrity will not engage in dishonest behavior, whereas those with low integrity can be either honest or dishonest (Kim et al., 2004; Reeder et al., 2001; Snyder & Stukas, 1999). Therefore, any occasion wherein a partner appears to act unethically suggests that the partner has low integrity because a partner with high integrity presumably would not behave that way. As Kim et al. note, "Embezzling from a company once makes us an embezzler even if we do not engage in additional thefts" (106). On the other hand, an episode of honest behavior is not viewed as proof of high integrity because a partner with low integrity will behave honestly in some instances and dishonestly in others.

These tendencies constitute an asymmetry that is important to competence- and integrity-based trust in IORs. Individuals attend more to positive information about competence and to negative information about integrity (Kim, Dirks, Cooper, & Ferrin, 2006; Madon, Jussim, & Eccles, 1997). Given this distinction, the question about the relative influence of competence- and integrity-based trust becomes a question of whether positive information about competence or negative information about integrity is more prominent (people discount negative information about competence and positive information about integrity). Scholars note that managers are more attentive to negative information than they are to positive information when both coexist. They afford more weight to negative events than positive events of comparable scale (Fein, 1996). Information processing studies suggest that in situational evaluations, individuals weight negative information more heavily than positive information (Fiske, 1980). For example, Slovic (1993) evaluated the impact of hypothetical news events, finding that bad news is perceived as more salient than good news. Stated differently, people are more likely to factor negative information into their evaluations of exchange partners than they do positive information (Bloom & Price, 1975).

Taken together, these arguments suggest that when competence- and integrity-based trust operate simultaneously, integrity is likely to be a more potent force than competence. Although competence-based trust improves the relationship and reduces ex post transaction costs, integrity-based trust removes the cloud of suspicion associated with beliefs about the potential for opportunistic behavior, which is an overarching concern about IOR partner motives (Fein, 1996; Lewicki et al., 1998). For this reason, Connelly et al. describe how, when these two dimensions of trust operate simultaneously, the integrity component predominates "owing to the disproportionate influence of suspicion and negative information" (2012: 824) as compared to positive information about the partner's technical competence. This leads us to hypothesize the following:

Hypothesis 2: Within IORs, the magnitude of the relationship between integrity-based trust and ex post transaction costs is greater than that between competence-based trust and ex post transaction costs. Stated simply, integrity matters more than competence for reducing ex post transaction costs.

Trust and Ex Ante Transaction Costs

Our hypotheses about both dimensions of trust and ex post transaction costs reflect a body of literature that suggests trust reduces transaction costs because it supports relational norms

(e.g., cooperation) that replace, or substitute for, monitoring and control (Dyer & Singh, 1998; Frey, 1997; Gulati, 1995; Poppo & Zenger, 2002; Uzzi, 1997). As a substitute for monitoring and control, “trust can dramatically reduce . . . agency risks—replacing fear of shirking and misrepresentation with mutual confidence” (Adler, 2001: 219). Trusting parties are more willing to exchange potentially valuable tacit information, possess greater receptivity to each other’s influence, have less need to monitor, and are less likely to perceive that shortcomings are caused by opportunistic actions (Chiles & McMackin, 1996; Ring & Van de Ven, 1994; Uzzi). Consequently, trusting partners enjoy reduced ex post transaction costs because they resolve conflict through discussion and without third-party interventions (Dyer & Singh).

While trust encourages cooperative behaviors and reduces ex post transaction costs, theory and evidence imply the opposite for ex ante transaction costs. Trust and complex contracts *complement* each other because trust leads parties to negotiate more complex contracts (Ryall & Sampson, 2009; Schepker et al., 2014). Contracts formally reward cooperative behavior and increase the costs of uncooperative behavior (Lazzarini, Miller, & Zenger, 2004). Accordingly, when trusting IOR partners enter into agreements, they design contracts that, on the basis of their prior knowledge about each other, reward cooperation and minimize the costs of resolving conflicts and adapting to change (Poppo & Zenger, 2002). The complementary view suggests that trusting parties who are familiar with each other are better equipped to anticipate problems and negotiate solutions in advance, so they prefer complex contracts, despite the fact that negotiating and drafting such contracts can involve significant up-front costs. The growing body of evidence supporting the complementary view is substantial (e.g., Blomqvist, Hurmelinna, & Seppänen, 2005; Fryxell, Dooley, & Vryza, 2002; Li, Poppo, & Zhou, 2010; Luo, 2002; Mellewigt, Madhok, & Weibel, 2007; Schepker et al.). As Ryall and Sampson put it, “We now know from a growing body of theoretical and empirical work, the resulting intuition—that relational mechanisms will be substituted for formal ones whenever possible—does not generally hold” (906).

There have, however, been important attempts to identify contingencies that shift managers’ preferences for complex contracts as substitutes versus complements of trust (e.g., Mellewigt et al., 2007; Puranam & Vanneste, 2009). Two studies, in particular, suggest that the type of trust is one such contingency. Lumineau (2017) theorizes that whereas contracting enhances the benefits of “calculative” trust, it can diminish the benefits of “noncalculative” trust, especially when the contracting focus is on control rather than coordination. Lui and Ngo (2004) similarly found that complex contracts complemented competence-based trust to accelerate project completion times and increase satisfaction, but such contracts increased completion times and decreased satisfaction in the presence of integrity-based trust (which they called “goodwill” trust). These studies focused on IOR outcomes (i.e., performance, satisfaction). Extrapolating their ideas to help explain ex ante transaction costs, we theorize that integrity-based trust acts as a substitute for complex contracts, which relates to lower ex ante transaction costs, but competence-based trust enables complex contracts, which relates to higher ex ante transaction costs.

There are two key differences between competence- and integrity-based trust that likely affect the degree to which they can substitute for complex contracting and the ex ante transaction costs such contracting involves. First, integrity-based trust generalizes across IOR domains, whereas competence-based trust does not. As IORs spread across domains,

integrity-based trust generalizes because an honest partner is always believed to be honest, regardless of the exchange context. In contrast, competence-based trust works in localized domains on the basis of evaluations of partner competence and reliability (Mesquita, 2007). An organization might trust a partner's technical skills in one domain but not in another. Dirks and Skarlicki describe how a partner "may be competent in one domain (task A)—and therefore trusted in that domain—but not trusted in another domain" (2004: 25). Competence-based reliability simply does not pervade all aspects of a relationship in the same way as integrity-based trust (Ullmann-Margalit, 2004).

The second key distinction is that, whereas integrity-based trust implies reduced fear of opportunism, competence-based trust is grounded in the trustor's knowledge of, and experience with, an IOR partner's ability to perform specific tasks (Lee, 2004; Whipple & Frankel, 2000). It is unrelated to the partner's character, shared values, or sense of fairness. Thus, while competence-based trust increases confidence that even under adverse conditions an IOR partner will correctly perform tasks within a particular domain, organizations must be wary of becoming overly dependent on a single partner because that partner may not share the organization's interests (Lui & Ngo, 2004).

From these differences, we theorize that integrity-based trust reduces ex ante transaction costs through substitution. Ex ante transaction costs occur as partners develop contracts and parameters for new or expanding joint activities. If partners' preexisting knowledge and experience engenders integrity-based trust, it will carry over to the new domain (Mesquita, 2007) because integrity-based trust induces positive attributions applied across domains (Kramer, 1994; Ullmann-Margalit, 2004). Integrity-based trust fosters information sharing (Dyer & Chu, 2003; Li et al., 2010; Szulanski, Cappetta, & Jensen, 2004) and increases mutual cooperation (Uzzi, 1997; Zaheer, McEvily, & Perrone, 1998), which reduces the need for formal contracts (Gulati, 1998; Larson, 1992). Also, integrity-based trust is fragile in that it can dissolve when an IOR partner engages in even a single dubious action (Bies & Tripp, 1996; Searle & Ball, 2004). Thus, the very act of presenting a trusted party with a detailed contract proposal that presupposes opportunism could be viewed as a lack of trust that threatens the parties' perceptions of each other (Bernheim & Whinston, 1998; Macaulay, 1963). As Sitkin and Roth put it, "Legalistic remedies can erode the interpersonal foundation of a relationship they are intended to bolster because they replace reliance on an individual's 'good will' with objective, formal requirements" (1993: 376). Therefore, we submit that IOR partners will keep contracts short and open-ended when integrity-based trust is high—both to preserve trust and to reap the benefits of this dimension of trust for maximizing overall value creation (e.g., Dyer & Chu; Gulati, 1995; Uzzi; Zaheer et al.). Stated formally:

Hypothesis 3: Within IORs, integrity-based trust is negatively related to ex ante transaction costs.

Higher levels of competence-based trust should be associated with partners' desiring to engage in more domains of exchange. Trust based on competence is technical and rational, so there are likely to be a wide range of technical details and logistical considerations that vary for each of these domains (Lui & Ngo, 2004). Thus, contracts are still needed to arrange the potentially extensive specifics within each domain, and the complexity of such contracts will naturally increase as the relationship becomes more complex and encompasses more domains. Moreover, expanding an existing IOR into new domains can increase ex ante transaction costs

by increasing the focal firm's reliance on the partner and the partner's technical expertise; this occurs because the focal firm effectively loses buying power as it becomes more dependent on the partner across a range of exchange contexts (Faems, Janssens, Madhok, & Van Looy, 2008; Lui & Ngo). More importantly, the complementary view suggests that complex (and costly) contracting and trust are mutually supportive in building cooperation and value creation (Lazzarini et al., 2004; Luo, 2002; Poppo & Zenger, 2002). By increasing the costs of negotiating the technical details of the relationship and the gains from mutual success, contracts and other formal control mechanisms encourage partners to find creative solutions to problems and invent new revenue streams that were not obvious when the original IOR agreement was negotiated (Dyer & Singh, 1998). Furthermore, competence-based trust implies prior knowledge about the other party's capabilities that makes it possible to write contracts that specify each party's responsibilities and describe domain-specific ways to resolve disputes and adapt to change, perhaps involving specific people and processes (Luo; Poppo & Zenger). Thus, because they have "more to talk about," partners with high levels of competence-based trust may spend more ex ante time and effort in hopes of increasing the ultimate value of the relationship.

In short, the well-established positive relationship between complex, and costly, contracting and relational reciprocity norms (including trust; Ryall & Sampson, 2009; Schepker et al., 2014) implies that at least some ex ante transaction costs rise in the presence of trust. We suggest that they do so in the presence of competence-based trust because complex contracting can protect such partners from resource dependencies that reduce negotiating power and foster greater value creation through cooperation and creative problem solving (Crook & Combs, 2007). Therefore, we hypothesize the following:

Hypothesis 4: Within IORs, competence-based trust is positively related to ex ante transaction costs.

We do not hypothesize about the relative strength of the effects of competence- and integrity-based trust on ex ante transaction costs because we argue that they work in opposite directions. That is, if the logic surrounding Hypotheses 3 and 4 holds, then integrity-based trust reduces ex ante transaction costs but competence-based trust adds to them.

Method

Sample and Coding

We began with the goal of collecting for input into meta-analysis all empirical articles from management and closely related disciplines that examined links among the constructs of interest and reported effect-size statistics. We included in our sample those studies that met all of the following criteria. First, the study had to come up with our search terms "transaction cost(s) and trust" in one of several databases (e.g., ABI Inform) or be referenced in the literature reviews (e.g., David & Han, 2004) that we culled for additional papers. Second, the study needed to capture enduring IORs. Thus, we included only studies that captured IORs that were stronger than arm's-length contracts (e.g., joint ventures, alliances as opposed to market transactions). Third, the study needed to report effect sizes between one or more of our relationships of interest. Our search yielded 144 usable studies containing 150 samples that investigated 37,366 IORs. We list the studies in the appendix.

Importantly, there are multiple operationalizations of our constructs, and the measures are sometimes specific to a particular study. While the measures may vary, researchers intend for them to capture the same theoretical constructs and relationships, which is important for accumulating knowledge. As Orlitzky, Schmidt, and Rynes describe, “From the vantage point of generating cumulative knowledge, multiple operationism is an advantage because it helps determine whether a ‘true’ relationship exists in different industry contexts with different operationalizations” (2003: 413). Consistent with these ideas, our study shows that the theoretical relationships under investigation hold across measures and contexts, which offers increased confidence in their external validity (Aguinis, Pierce, Bosco, Dalton, & Dalton, 2011). In the appendix, we list how we coded all of the underlying constructs and relationships. Three independent raters, one of whom was not a coauthor on this study, coded each of the trust–transaction cost studies. Initial interrater reliability was 86%, and the coders resolved all disagreements via discussion.

Dependent Variables

TCE describes ex post transaction costs as expenses associated with monitoring and/or controlling a partner in an IOR, making changes to IOR agreements when unanticipated disturbances occur, haggling with an IOR partner when agreements do not address certain conditions, negotiating assignment of unforeseen property rights, and maladaptation costs (Williamson, 1985). Ex post transaction costs, thus, occur after IOR exchanges start. We captured these costs by using measures from primary studies, such as (1) survey scales with items depicting the extent to which firms monitor the quality control of a partner (Aulakh, Kotabe, & Sahay, 1996), (2) a measure indicating whether alliance contracts were renegotiated during the course of the alliance (Reuer & Ariño, 2002), and (3) time spent haggling or assigning blame (Dyer & Chu, 2003).

TCE describes ex ante transaction costs as expenses related to negotiating and crafting contractual agreements with an IOR partner (Williamson, 1985). In short, ex ante transaction costs are absorbed before IOR exchanges begin. We coded measures from primary studies as depicting such costs when the measure clearly captured the extent of formal contractual and governance mechanisms. For example, we leveraged measures such as (1) a composite measure that captured the extent to which an IOR relied on eight governance mechanisms (e.g., reports and service-level agreements; Hoetker & Mellewigt, 2009), (2) survey responses about the amount of detail and specificity in contracts (Connelly et al., 2012), and (3) “contractual complexity,” which depicts the extent to which a contract was highly customized (Poppo & Zenger, 2002; Reuer & Ariño, 2002).

Independent Variables

We coded measures as depicting *integrity-based trust* when they assess a partner’s character, the degree of values alignment, and perceived behavior, such as whether one IOR partner believed the other would act inappropriately for its own gain. We also included measures such as Gundlach and Cannon’s (2010) composite trust measure, which consisted of the following items: “this is one of the most trustworthy suppliers with whom we do business,” “sometimes this vendor is not completely honest with us” (reverse-coded, R), “we sometimes find it necessary to be cautious with this supplier” (R), and “we trust that this supplier keeps

our best interests in mind.” We also included survey measures that captured whether an IOR partner “has always been evenhanded in its negotiations with us” or whether the partner “may use opportunities that arise to profit at our expense” (R) as integrity-based trust because they address the IOR partner’s values (Zaheer et al., 1998: 148). We did not include relationship duration because IORs often endure without integrity-based trust, for instance, if one partner is highly dependent on the other (Wells & Kipnis, 2001).

Competence-based trust is an expectation that a partner has the technical skills, experience, and reliability needed to fulfill its obligations. To capture competence-based trust, we coded survey scales with items such as “we cannot with complete confidence rely on Supplier X to keep promises made to us” (R) and “we are hesitant to transact with Supplier X when the specifications are vague” (R; Zaheer et al., 1998: 148). We also coded survey scales with items reflecting the extent to which suppliers “consistently meet expectations” and “provide quality services in a timely manner” (Gainey & Klass, 2003: 225). In addition, Williamson (1993) views trust as embedded in knowledge about others, and Gulati contends that “trust emerging from prior contact is based on the premise that through ongoing interaction, firms learn about each other” (1995: 92). Competence-based trust arises largely due to reliable performance over time, so we also included measures of trust that capture length of the prior exchange relationship (Kotabe, Martin, & Domoto, 2003).

Control Variables

We also sought to control for other potential determinants of transaction costs, and we did so by following best-practice recommendations in the use of statistical controls (Bernerth & Aguinis, in press). According to TCE, transaction costs in an IOR arise from the potential for and costs of opportunism, which increase when asset specificity, transaction frequency, and uncertainty characterize the transactions (Williamson, 1985).

Asset specificity refers to the degree to which investments made to support a transaction have a higher value in that transaction than they would if used for another purpose (Williamson, 1985). An example of an asset specificity measure is the degree to which production systems, tools, and equipment are tailored to work with a particular supplier (Zaheer et al., 1998). Transaction frequency refers to how often exchanges occur. Poppo and Zhou’s (2014) measure of how frequently a buyer placed an order with the supplier is a good example.

Three types of uncertainty are prominent in the TCE literature (Geyskens et al., 2006). Technological uncertainty arises from partners’ inability to forecast the trajectory of a technology’s development and the technological standards that might emerge. We included measures such as the anticipated time that a new technology would retain value and the trajectory of technology’s anticipated life cycle (Schilling & Steensma, 2002). Volume uncertainty arises from partners’ inability to forecast future demand. We included measures that capture perceived sales volatility or difficulty with forecasting demand (Robertson & Gatignon, 1998). Behavioral uncertainty is present to the extent that the performance of one’s exchange partner is difficult to measure or key activities are hidden from view. We included measures such as survey scales depicting the extent to which organizations could or could not assess performance for this construct (Bercovitz, Jap, & Nickerson, 2006).

Analytic Procedures

To test our hypotheses, we followed the MASEM two-step theory-testing approach. We followed the best-practice recommendations offered by Bergh et al. (in press). The first step involves using meta-analysis to build a correlation matrix of estimates of the size of bivariate relationships among all constructs of interest. If a study used multiple measures of a single construct and reported separate effects for each measure, we averaged them to yield a single effect (Hunter & Schmidt, 2004). However, if a study reported correlations from two independent samples (e.g., Kotabe et al., 2003), we treated each sample as an independent observation.

We used formulae provided by Hunter and Schmidt (2004) to conduct 36 separate meta-analyses and derived a correlation matrix wherein each cell is a meta-analytic estimate of the relationship between two constructs. Meta-analysis weights effects by the size of the sample of the underlying study to calculate a weighted average effect size. By averaging effects from multiple studies, meta-analysis reduces the impact of sampling error (which is the most pernicious cause of effect-size variance across studies). After sampling error, measurement error has the largest biasing impact on effect-size estimates (e.g., correlations) and their across-study variability. Because most studies do not report reliability coefficients, we used a correction of 0.80 for both predictor and criterion variables on the basis of an average reliability in 5,581 correlations reported in five leading journals across more than 25 years (Aguinis, Dalton, Bosco, Pierce, & Dalton, 2011). We report the meta-analytically derived correlation matrix in Table 1. As expected, competence- and integrity-based trust are not highly correlated (mean observed correlation = .06, mean corrected correlation = .08), which is consistent with the notion that these are, indeed, separate dimensions of trust.

The second step in MASEM is to test theory by using the correlation matrix as input into a structural equation model. We refer to this step as structural equation modeling (SEM) and not path analysis because the meta-analytically derived correlations that act as input for the analysis have been corrected for measurement error and, hence, are construct-level estimates (i.e., relationships among latent variables rather than their observable indicators). This approach allows for examination of the extent to which a body of findings conforms to theory-based predictions.

MASEM allows researchers to draw inferences about relationships when multiple theoretical relationships are involved. Although SEM is traditionally used with primary-level data, input for our model includes meta-analytically derived correlations from 150 samples. Thus, as described by Bergh et al. (in press), MASEM combines the strength of meta-analysis (i.e., avoiding small-sample bias, improving external validity) with those of SEM (i.e., ability to test structural relationships and assess the relative fit of data to theoretical predictions). We conducted our MASEM analysis with Amos 16 by using the meta-analytically derived correlation matrix as input, a harmonic mean of 2,496, and maximum likelihood estimation. The harmonic mean gives less weight to large individual study sample sizes and is more conservative than the arithmetic mean. To test our substantive predictors, we controlled for each of the transaction characteristics and examined the individual path coefficients for competence- and integrity-based trust on ex ante and ex post transaction costs. To assess the overall model fit, we examined the normed fit index (NFI), the goodness of fit index (GFI), the comparative fit index (CFI), and the root mean square residual (RMR).

Table 1
Meta-Analytic Derived Correlation Matrix

	AS	TU	VU	BU	TF	CT	IT	EA	EP
Asset Specificity (AS)		28/7,407	18/4,468	27/6,035	20/3,964	48/13,539	36/8,487	35/6,617	38/10,081
Technological Uncertainty (TU)	.12		12/3,205	12/3,507	6/966	18/4,404	10/1,933	8/1,237	14/4,107
Volume Uncertainty (VU)	-.04	.19		10/2,723	4/657	13/2,933	13/2,844	5/928	9/2,190
Behavioral Uncertainty (BU)	.08	.08	.15		7/1,028	14/3,500	12/2,031	14/3,143	12/3,383
Transaction Frequency (TF)	.22	-.04	-.09	.13		14/3,002	5/771	11/2,421	12/2,427
Competence-Based Trust (CT)	.07	-.01	.08	-.11	.19		33/7,751	37/8,636	33/9,624
Integrity-Based Trust (IT)	.10	-.08	-.05	-.19	.06	.08		20/5,265	23/6,045
Ex Ante Transaction Costs (EA)	.16	-.04	-.06	.11	.07	.07	-.06		30/7,357
Ex Post Transaction Costs (EP)	.06	.07	.17	.11	.06	-.05	-.50	.13	

Note: Correlation coefficients in the lower diagonal are corrected for sampling, predictor, and criterion measurement error (Aguinis, Dalton, Bosco, Pierce, & Dalton, 2011; Hunter & Schmidt, 2004). Number of samples and sample sizes are shown in the upper diagonal.

Results

The first column of Table 2 shows the results of our initial model with the controls as predictors of IOR transaction costs. As expected, several of the traditional TCE drivers of transaction costs were significant predictors of ex ante and ex post transaction costs, with asset specificity having the strongest relationships. The overall fit of the data to the model met acceptable standards along several criteria (i.e., GFI = .99, CFI = .91, NFI = .91, RMR = .03), but the results also revealed that the model could be improved.

We next added the hypothesized predictors. The second column of Table 2 contains MASEM results for the hypotheses. Hypothesis 1a was supported. It predicted that integrity-based trust is negatively related to ex post transaction costs; the coefficient for integrity-based trust is significant and in the hypothesized direction (standardized coefficient $\beta = -0.51$, $p < .001$). Hypothesis 1b, which predicted that competence-based trust between IOR partners lowers ex post transaction costs, was also supported ($\beta = -0.05$, $p < .01$).

In Hypothesis 2, we considered whether the strength of the effects of integrity- and competence-based trust on ex post transaction costs differed from each other. This is akin to what some have called relative importance analysis (LeBreton, Tonidandel, & Krasikova, 2013) or dominance analysis (Budescu & Azen, 2004). Such analyses allow researchers to compare the relative importance of predictors, which is the contribution that each individual variable makes to the explained variance of the dependent variable (Johnson & LeBreton, 2004). To do this, we formally compared the path coefficient from integrity-based trust to ex post costs (-0.51) with the coefficient linking competence-based trust and ex post costs (-0.05). We used standardized coefficients that show the predicted change in standard deviation units in

Table 2
Meta-Analytic Structural Equation Modeling Results Predicting
Ex Post and Ex Ante Transaction Costs

	Model 1	Model 2
Control Variables		
Asset Specificity–Ex Ante Transaction Costs	0.15***	0.16***
Technological Uncertainty–Ex Ante Transaction Costs	–0.06**	–0.06**
Volume Uncertainty–Ex Ante Transaction Costs	–0.05**	–0.06**
Behavioral Uncertainty–Ex Ante Transaction Costs	0.11***	0.11***
Transaction Frequency–Ex Ante Transaction Costs	0.02	0.00
Asset Specificity–Ex Post Transaction Costs	0.05*	0.11***
Technological Uncertainty–Ex Post Transaction Costs	0.03	–0.01
Volume Uncertainty–Ex Post Transaction Costs	0.16***	0.17***
Behavioral Uncertainty–Ex Post Transaction Costs	0.07***	–0.03
Transaction Frequency–Ex Post Transaction Costs	0.05**	0.10***
Substantive Predictors		
Integrity-Based Trust–Ex Post Transaction Costs (Hypothesis 1a)		–0.51***
Competence-Based Trust–Ex Post Transaction Costs (Hypothesis 1b)		–0.05**
Integrity-Based Trust–Ex Ante Transaction Costs (Hypothesis 3)		–0.07**
Competence-Based Trust–Ex Ante Transaction Costs (Hypothesis 4)		0.08***
Fit Indices		
GFI	.99	.99
CFI	.91	.97
NFI	.91	.97
RMR	.03	.02

Note: Coefficients are standardized and covariances between transaction frequency and (1) technological and (2) volume uncertainty are fixed at 0 for both Model 1 and Model 2 because transaction cost economics does not offer strong theoretical logic linking these transaction attributes. GFI = goodness of fit index; CFI = comparative fit index; NFI = normed fit index; RMR = root mean square residual.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

the criterion associated with a 1 *SD* change in the predictor; thus, all coefficients are in the same scale and directly comparable.

Comparing the magnitude of the coefficients for competence- and integrity-based trust for the models predicting ex post transaction costs, we obtained a critical ratio (z) of -18.14 ($p < .001$), where z is the difference between the estimate of the effects divided by an estimate of the standard error of the difference. Thus, integrity-based trust reduces ex post transaction costs more strongly than increasing competence-based trust. Specifically, our results suggest that integrity-based trust is 10 times more effective at reducing ex post transaction costs (i.e., $-0.51 / -0.05 = 10.2$). In addition, although this was not the subject of a hypothesis, we compared the effects for competence-based ($\beta = 0.08$) and integrity-based ($\beta = -0.07$) trust in the models predicting ex ante transaction costs. We obtained a critical ratio of -5.22 ($p < .001$), showing that the lower transaction costs that occur with integrity-based trust are significantly different from the higher transaction costs that occur with competence-based trust.

Returning to Table 2, we can see the results of our test of Hypothesis 3, which predicted that integrity-based trust is negatively related to ex ante transaction costs; it was supported

($\beta = -0.07, p < .01$). Hypothesis 4 predicted that competence-based trust is positively related to ex ante transaction costs. This, too, was supported ($\beta = 0.08, p < .001$). Model fit improved across all indices (GFI = .99, CFI = .97, NFI = .97, RMR = .02), which suggest acceptable fit.

In three supplementary tests, we also investigated whether our focal relationships varied by (1) service versus manufacturing sectors, (2) domestic versus international IORs (i.e., whether the IOR crosses national borders), or (3) U.S. versus international samples (i.e., whether the firms are in the United States or in different countries but with IORs that are generally within those individual countries). Specifically, we conducted tests by recoding all of our primary studies to create subgroups based on the nature of the sample (Hunter & Schmidt, 2004). We then conducted individual meta-analyses and created confidence intervals around the mean effects to determine whether they were statistically different by subgroup. We found no differences in effects across sets of relationships, suggesting that the trust–transaction cost relationships described above are stable across these three dimensions.

Discussion

The fictional company in our opening vignette faced a choice—partner with a competent company whose integrity is questionable or partner with another that has a reputation for strong integrity but whose competence is uncertain. We ask which matters more for increasing IOR efficiency: increasing competence-based trust or integrity-based trust. Our results leverage 30 years of evidence to show that managers facing choices like this should prioritize integrity if they wish to lower transaction costs. One might conceive of this in terms of ROI, or trust ROI. Given constrained resources and limited attention, our results show that managers faced with a decision of whether to invest in activities that build competence or integrity can maximize their payoff by focusing on integrity. In fact, the impact of integrity-based trust on ex post transaction costs is, on average, about 10 times larger than that of competence-based trust. Integrity-based trust also reduces ex ante transaction costs, although this reduction is only a small fraction (about 1/7th) of that associated with ex post transaction costs. Consistent with the complementary view that detailed contracts foster cooperative relationships in new domains, results show that competence-based trust is associated with higher levels of ex ante transaction costs. We offer new theorizing to explain these results.

Contributions

Our first contribution is to build on theory about how people process positive and negative information about others' behavior in order to explain why the impact of integrity-based trust in IORs is larger than that of competence-based trust. Specifically, we theorize that hierarchically restrictive schemas (Ferrin et al., 2007; Reeder & Brewer, 1979) result in partners' discounting negative information about competence (i.e., even competent people are incompetent sometimes) but not integrity (i.e., a single act of dishonesty colors all other acts). Consistent with this theorizing, our results show that managers seeking to improve the efficiency of their IORs may do well by improving their reliability with exchange partners, but they can do much better by building perceptions of strong character.

Our second contribution is to help explain when trust and complex contracts are substitutes versus complements (Poppo & Zenger, 2002). Negotiating and writing complex contracts is expensive, and while some scholars suggest that trust substitutes for contracts (e.g., Adler, 2001; Gulati, 1995; Uzzi, 1997), new theory and evidence shows how trusting partners incur ex ante transaction costs in an effort to construct complex contracts that foster extensive cooperation (Ryall & Sampson, 2009; Schepker et al., 2014). We extend to the transaction cost context extant theory about how types of trust work differently in IORs (Lui & Ngo, 2004; Lumineau, 2017). Specifically, we theorize that the substitution view is applicable to integrity-based trust, which could suffer from formal negotiating, while the complementary view is more apropos for competence-based trust, which leaves partners exposed to additional costs from potential resource dependencies and gives them “more to talk about” in constructing value-creating contracts.

Third, we contribute by consolidating prior findings to offer externally and internally valid estimates of the different effects of two trust dimensions on the transaction costs that occur before (i.e., ex ante) and after (i.e., ex post) partner firms establish an IOR (Williamson, 1985). Prior IOR research often used measures of integrity- and competence-based trust interchangeably. We derive our estimates from MASEM based on findings from 150 samples encompassing more than 37,000 organizations engaged in IORs. This analysis provides high confidence of external validity based on large amounts of data and strong internal validity based on prior theory by specifying the direction of effects and including control variables and other predictors in the same model (Drees & Heugens, 2013; Robbins, Oh, Le, & Button, 2009).

Implications and Directions for IOR Research

Our work has implications for researchers interested in IORs and trust in addition to implications for practice. With regard to IORs, we estimated the different effects that two dimensions of trust have on transaction costs, but these costs are only one side of IORs. The reason managers initiate IORs in the first place is presumably to create economic value, either by performing necessary tasks at lower costs or by creating attractive new products and services (Dyer & Singh, 1998). Thus, it seems possible that the impact of integrity- and competence-based trust on value creation could be different from their effect on transaction costs. Indeed, the literature on the relationship between complex contracting and trust focuses on post hoc outcomes, such as IOR performance (i.e., value creation), rather than transaction costs. Our extension to the transaction cost context is consistent with that theorizing with respect to competence-based trust. Partners with high competence-based trust invest ex ante in transaction costs by developing complex contracts, but this investment does not seem to pay off as much in ex post transaction cost reductions. Although it is ultimately an empirical question for future inquiry, our results suggest that the positive benefits from ex ante investments in complex contracting in the presence of competence-based trust might primarily occur on the value maximizing side of the IOR equation; such benefits are less evident in the cost minimizing side that we investigate here.

Integrity-based trust, in contrast, lowers both ex ante and ex post transaction costs, which is inconsistent with theory and evidence about trust and complex contracting being complements (e.g., Blomqvist et al., 2005; Fryxell et al., 2002; Li et al., 2010; Luo, 2002; Mellewigt

et al., 2007; Schepker et al., 2014). The result is, however, consistent with Lui and Ngo's (2004) finding that complex contracting decreases IOR performance when combined with integrity-based trust (see also Lumineau, 2017). What we do not yet know is how competence- and integrity-based trust affect long-term IOR value. Using our opening vignette as an example, our results show that it will be less costly to set up and monitor agreements with Company B, whose reputation is based on integrity. However, it is possible, for instance, that the more competent Company A could find solutions to manufacturing problems or discover new widget designs that attract additional customers at higher prices and that these value enhancing advantages outweigh the transaction cost disadvantages of dealing with Company A. Thus, future inquiry might benefit by investigating the effects of integrity- and competence-based trust on value creation in IORs.

Because our study design agglomerates a large number of studies from all over the globe, our results offer favorable generalizability. However, they may also mask variations that occur due to cultural variations across countries and across time. Thus, another potentially fruitful avenue for future inquiry might be to investigate how cultural factors moderate the impact of integrity- and competence-based trust in IORs. Integrity-based trust might, for example, be less important relative to competence-based trust in collectivist countries with strong norms of social cultural trust (e.g., Dyer & Chu, 2003) but more important in countries where trust is needed to fill institutional voids left by weak economic and political institutions (e.g., Holmes, Miller, Hitt, & Salmador, 2013). Similarly, future research might benefit from considering the role of time (George & Jones, 2000). It may be not only that integrity-based trust has stronger effects but also that these effects are more immediate. Incorporating time might also yield different results for ex ante and ex post transaction costs. For example, high levels of integrity-based trust could be incorporated into monitoring procedures that decrease transaction costs over a span of many years, while the effects of competence-based trust might fade quickly as memories fade.

Implications and Directions for Trust Research

Our study is the first to apply the distinction between integrity- and competence-based trust to a large sample of effects to draw strong conclusions about which dimension has the largest impact. We theorized that integrity-based trust has larger effects because information processing theory predicts that people have stronger reactions to negative information (Kim et al., 2006; Madon et al., 1997; Martijn et al., 1992) and, because of hierarchically restrictive schemas, a single piece of negative information about integrity is more damaging than a similar lapse of competence (Kim et al., 2004; Reeder et al., 2001; Snyder & Stukas, 1999). Although information processing theory is well established, it seems possible there are other factors that might also help explain the considerably larger ex post impact of integrity-based trust. It might be, for example, that failures of integrity evoke different and more powerful emotions (such as anger and bitterness) than do failures of competence. Lab experiments might be a particularly fruitful technique for isolating the extent to which the effects we found are due to differences in how people react to negative information or whether other explanatory factors contribute to differences in how organizations perceive trust.

The distinction between integrity- and competence-based trust was developed among scholars interested in the nature and impact of trust (e.g., Atkinson & Butcher, 2003; Whipple & Frankel, 2000). We offered theory and evidence that this distinction generalizes to the IOR

context, which is suggestive that there might be other areas of inquiry that could similarly benefit. Corporate governance research, for example, has done much under the banner of stewardship theory (Davis, Schoorman, & Donaldson, 1997) to recognize that top managers often act in the best interests of the firm regardless of incentives or monitoring (i.e., they act with integrity). Others have shown that managers' human capital, a form of competence, matters (e.g., Combs & Skill, 2003), as does managerial incompetence (Hendry, 2002). Our study suggests there might be gains for corporate governance research from investigating how these aspects of top managers affect perceptions of both dimensions of trust among key stakeholders.

Practical Implications

Our results could also have important practical implications for managers engaged in cooperative strategies (Lewicki et al., 1998). An old proverb states that it takes years to build trust and seconds to destroy it. This common wisdom may be reflective of the separability of competence- and integrity-based trust (Mesquita, 2007). For managers seeking to maximize the efficiency of their relationships with other firms, improving technical reliability is useful, but it is even more important to demonstrate impeccable character. For managers selecting among partners for potential IOR expansion, our results suggest that costs will be minimized to the extent that one focuses on those with whom integrity-based trust has been established.

Because reported coefficients are standardized, we can use information from the primary studies to better understand the practical significance of the effects by calculating the actual impact that an increase in trust has on transaction costs (cf. Aguinis et al., 2010). Using scales reported by Gundlach and Cannon (2010), Zaheer et al. (1998), and Dyer and Chu (2003), respectively, for integrity-based trust, competence-based trust, and ex post "transaction costs per dollar of sales," we can apply the coefficients reported in Table 2 to arrive at a trust ROI, calculated as the consequence of raising trust levels by 1 *SD* for transaction costs. Doing so suggests that a 1 *SD* increase in integrity-based trust is associated with a 1.72 unit decrease (i.e., 3.37×-0.51 [β]) in ex post transaction costs, while a 1 *SD* increase in competence-based trust is associated with only a 0.17 unit decrease (i.e., 3.37×-0.05 [β]). One could interpret our results to mean that a 1 *SD* increase in integrity-based trust reduces ex post transaction costs per dollar by 1.72% and a 1 *SD* increase in competence-based trust decreases those costs by only 0.17%. If an IOR contract is worth \$100 million, then our results mean that a 1 *SD* increase in integrity-based trust could offer a \$1,720,000 reduction in ex post transaction costs, and a 1 *SD* increase in competence-based trust might result in a \$170,000 decrease. These differences appear to point to a meaningful trust ROI.

Limitations

Our findings should be viewed within the context of the study's limitations. For example, researchers measure constructs in different ways, which could inflate the variance across the relationships we examined. Because meta-analysis centers on average effects (Hunter & Schmidt, 2004), it is difficult to explain other potential sources of variance (i.e., moderators) other than by creating subgroupings of relationships, such as we did in our robustness tests. Although our study provides a broad understanding of the relationships under investigation, scholars interested in how competence- and integrity-based trust operate in specific contexts

could gain a more detailed perspective by examining them in those contexts. For instance, there may be differences between firms that have built high levels of competence-based trust across many different types of exchanges, such as technical innovation, marketing, and operations, as compared to those who have built competence-based trust in one type of exchange.

Some limitations arise from the nature of our data and analysis. For instance, we do not know the extent to which IORs in our sample operate across multiple domains. Our arguments about the generalizability of trust (integrity or competence based) across multiple domains would likely be more valid to the extent there is little or no overlap between those domains. One additional limitation along these lines is that, because some trust measures contain items that capture integrity and competence, it is sometimes challenging to assign measures of trust into one category or another. It would be fruitful for future researchers to develop measures that more fully capture the unique properties of these different dimensions of trust. Moreover, we could not investigate how our relationships of interest may have changed over the duration of our study. Future research might consider how the advent and proliferation of technology and transportation might change the way different dimensions of trust affect IORs.

Causality is a concern in any meta-analysis, including ours, even though our use of MASEM allows us to provide findings about the direction of relationships. One problem is that the structure of the underlying studies limits our data set, so we cannot draw definitive conclusions about precisely when competence- or integrity-based trust develops between IOR partners. Future research, therefore, might test our ideas in a setting that rigorously determines when and how trust develops and how it then influences transaction costs. One possibility with respect to our final hypothesis might be that we are seeing a self-selection process wherein complex IORs that have high ex ante transaction costs might be reserved for relationships between highly competent partners. A primary study that specifically tests for this possibility would be a valuable extension of our work.

Lastly, we were unable to examine potentially important interactions between the dimensions of trust. We could not capture such linkages in our study, but scholars might explore whether competence- and integrity-based trust interact in IORs and to what extent the interactions vary across ex ante and ex post transaction costs. Our findings appear to suggest that when competence- and integrity-based trust are both high, they should work together to strengthen ex post cost savings, but their joint effects are not as clear for ex ante transaction costs, where their individual effects point in opposite directions. Relatedly, scholars might build on the conceptual ideas put forward by Lumineau (2017) to examine the reverse relationships, wherein different types of contractual arrangements might affect the dimensions of trust.

Conclusion

Our effort to consolidate research on trust via meta-analysis and SEM reveals some important nuances. Whereas trust has long been linked to the reduction of transaction costs, we advance a more individuated perspective wherein transaction costs in multiplex IORs are driven mainly by integrity-based trust, which generalizes across the entirety of the relationship. We find that competence-based trust is associated with higher levels of some transaction costs but lower levels of others as partners expand their exchange relationships to encompass a wider range of domains. We hope our effort to deconstruct the roles of competence- and integrity-based trust in IORs will spur further inquiry into how these dimensions of trust work separately, and together, to affect different forms of transaction costs in diverse contexts.

Appendix

List of Studies

Author, Year, Source ^a ; Constructs Captured ^b	Author, Year, Source; Constructs Captured
Adler & Scherer, 1999, JABR; V EA	Gulati, Lawrence, & Puranam, 2005, SMJ; A T F CT EP
Affuso, 2002, AE; AS EP	Gulati & Nickerson, 2008, OS; A F CT IT EP
Amirkhanyan, Kim, & Lambright, 2010, PPMR; CT EA	Gulati & Sytch, 2008, MDE; CT IT
Andersen & Buvik, 2001, O; V F CT	Gundlach & Cannon, 2010, JAMS; IT EA EP
Anderson & Weitz, 1992, JMKTR; A IT	Heide, 2003, JMKT; A V B F CT EA
Antia & Frazier, 2001, JMKT; A T B EP	Heide & John, 1990, JMKTR; A T V B EA
Artz, 1999, BJOM; A F CT EA	Heide & Miner, 1992, AMJ; B F CT EP
Artz & Brush, 2000, JEBO; A EA	Hoetker & Mellewig, 2009, SMJ; A CT EA
Aulakh & Gençtürk, 2008, JMS; CT EA	Hughes, 1999, D; A CT
Aulakh, Kotabe, & Sahay, 1996, JIBS; A IT EA EP	Jap (2), 1999, JMKTR; A V IT
Barthélemy & Quelin, 2006, JMS; A T EA EP	Jap & Ganesan, 2000, JMKTR; A CT IT EP
Bello, Chelariu, & Zhang, 2003, JBR; A EP	John, 1984, JMKTR; CT IT EA EP
Bello & Gilliland, 1997, JMKT; A EA EP	Johnson, 1988, D; T B EP
Bello, Katsikeas, & Robson, 2010, JMKT; CT EP	Joshi & Campbell, 2003, JAMS; T V CT EP
Bensaou & Anderson, 1999, OS; A T V CT IT	Joshi & Stump, 1999, JAMS; A B IT
Bercovitz, Jap, & Nickerson, 2006, OS; A V B EP	Joskow, 1987, AER; A F
Bosse, 2006, D; CT IT EP	Kale, Singh, & Perlmutter, 2000, SMJ; CT IT EP
Brouthers & Brouthers (2), 2003, JMS; A B IT	Katsikeas, Skarmeas, & Bello, 2009, JIBS; T V IT
Buvik, 2000, JBBMKT; A T F EP	Kim, 1999, IJRMKT; A V EP
Buvik, 2002, JBBMKT; A F EA EP	Klein & Roth, 1993, JAMS; V B
Buvik & Andersen, 2002, JIMKT; A F CT EP	Kotabe, Martin, & Domoto (2), 2003, SMJ; A CT
Buvik & Gronhaug, 2000, O; A T F EP	Krafft, 1999, JMKT; A V B
Buvik & Haugland, 2005, WP; A T F CT EA	Kumar, Scheer, & Steenkamp (2), 1995, JMKTR; V CT IT EP
Buvik & John, 2000, JMKT; A V F CT EP	Lassar & Kerr, 1996, SMJ; EA EP
Cannon & Perreault, 1999, JMR; A EA EP	Lee, 1998, IJRMKT; V CT IT
Carson, Madhok, Varman, & John, 2003, OS; A CT IT	Leffler & Rucker, 1991, JPE; B F EA EP
Carson, Madhok, & Wu, 2006, AMJ; A T B CT IT	Leiblein & Macher, 2004, WP; V CT
Cavusgil, Deligonul, & Zhang, 2004, JIMKT; CT IT EA	Li, Poppo, & Zhou, 2010, SMJ; A CT EA
Celly, Spekman, & Kamauff, 1999, JIBS; T V CT IT	Lievens & De Corte, 2008, HRM; A CT IT
Chelariu, 2002, D; V EP	Lim, 1991, D; A T V B EA EP
Connelly, Miller, & Devers, 2012, SMJ; CT IT EA	Liu, Luo, & Liu, 2009, JOPRM; A CT IT EA EP
Coulter & Coulter, 2002, JSM; CT IT	Lo, Frias, & Ghosh, 2012, OS; A T CT
Cusumano & Takeishi, 1991, SMJ; V CT	Lui & Ngo, 2004, JOM; A CT IT EA EP
Dahlstrom, McNeilly, & Speh, 1996, JAMS; A F EA EP	Lui, Wong, & Liu, 2009, JBR; A IT EA EP
Dahlstrom & Nygaard, 1999, JMKTR; IT EA EP	Lumineau & Malhotra, 2011, SMJ; A CT EA
Deeds & Hill, 1998, JBV; CT IT EA	Lumineau & Oxley, 2012, OS; CT EP
Dekker & Van Den Abbeele, 2010, OS; A B CT EA EP	Luo, 2007, SMJ; CT IT
Dewald, Hall, Chrisman, & Kellermanns, 2007, ETP; A CT	Lusch & Brown, 1996, JMKT; CT EA EP
Dickson & Weaver, 1997, AMJ; T V	Malhotra & Lumineau, 2011, AMJ; CT IT EA
Dutta, Heide, & Bergen, 1999, JMKT; T B	Mayer, 1999, D; A B CT
Dwyer & Oh, 1987, JMKTR; CT IT EA EP	McNally & Griffin, 2004, JSCM; A T V B
Dyer & Chu, 2003, OS; A IT EA EP	Mesquita, 2002, D; F CT EA
Everaert, Sarens, & Rommel, 2010, SBE; A B F IT	Miranda & Kim, 2006, MISQ; A T F
Fang, Palmatier, & Scheer, 2008, JMKT; IT EA EP	Mooi & Gilliland, 2013, IJRMKT; B CT EA EP
Fein & Anderson, 1997, JMKT; A V	Morgan & Hunt, 1994, JMKT; V IT EP
Fink, 1995, D; A T	Nickerson & Silverman, 2003, JEMS; A F
Fryxell, Dooley, & Vryza, 2002, JMS; CT EA	Nooteboom, Berger, & Noorderhaven, 1997, AMJ; A B F IT EA
Gainey & Klaas, 2003, JOM; A B CT IT EA	
Ganesan (2), 1994, JMKT; A T V CT IT	
Gilliland & Bello, 2002, JAMS; A IT EP	
Gulati, 1995, AMJ; A CT	

(continued)

Appendix (continued)

Author, Year, Source ^a ; Constructs Captured ^b	Author, Year, Source; Constructs Captured
Nooteboom, De Jong, Vossen, Helper, & Sako, 2000, II; A T B CT EP	Squire, Cousins, & Brown, 2009, BJOM; CT IT
Orr, 1998, D; A B F CT IT	Steensma & Corley, 2000, AMJ; A T
Parkhe, 1993, AMJ; A B CT IT EA	Steensma & Corley, 2001, AMJ; T CT IT
Parmigianni, 2007, SMJ; A T V B	Stump, 1995, JBR; A T F CT
Poppo & Zenger, 2002, SMJ; A T B CT IT EA EP	Stump & Heide, 1996, JMKTR; A T B EA EP
Poppo & Zhou, 2014, SMJ; F CT EA EP	Subramani & Venkatraman, 2003, AMJ; A T CT EP
Poppo, Zhou, & Li, 2015, SMJ; A B CT EA EP	Susarla, Subramanyam, & Karhade, 2010; ISR; CT EA
Poppo, Zhou, & Ryu, 2008, OS; A CT IT	Walker & Poppo, 1991, ASQ; A EP
Reuer, 2001, SMJ; A CT	Wang, Yeung, & Zhang, 2011, IJPE; CT EA
Reuer & Ariño, 2002, JOM; A CT EA EP	Wasti & Wasti, 2008, JIBS; T CT
Reuer & Ariño, 2007, SMJ; A CT EA	Weiss & Kurland, 1997, OS; A CT
Reuer, Zollo, & Singh, 2002, SMJ; CT EP	White & Lui, 2005, SMJ; A CT IT EA EP
Robertson & Gatignon, 1998, SMJ; A T V B	Wuyts & Geyskens, 2005, JOM; A V B F IT EA
Rokkan, Heide, & Wathne, 2003, JMKTR; A IT	Yilmaz & Kabadayi, 2006, JBR; AS IT EP
Rooks, Raub, & Tazelaar, 2006, JMG; EA EP	Young-Ybarra & Wiersema, 1999, OS; A CT EP
Rustagi, King, & Kirsch, 2008, ISR; T EP	Yu & Liao (2), 2008, MIR; A T CT EA
Sako & Helper, 1998, JEBO; A T CT EP	Zaheer, McEvily, & Perrone, 1998, OS; A CT IT EP
Saussier, 2000, JEBO; A EA	Zaheer & Venkatraman, 1994, MS; A IT
Schilke & Cook, 2015, SMJ; CT IT EA	Zaheer & Venkatraman, 1995, SMJ; A T IT
Schilling & Steensma, 2002, OS; T IT	Zhao & Wang, 2011, JSMKT; CT IT EA
Shervani, Frazier, & Challagalla, 2007, SMJ; A B	Zhou, Poppo, & Yang, 2008, JIBS; A F CT EA EP
Siguaw, Simpson, & Baker, 1998, JMKT; CT IT EP	Zhou & Poppo, 2010, JIBS; A B CT IT EA
Skarmeas, Katsikeas, & Schlegelmilch, 2002, JIBS; A V IT	Zollo, Reuer, & Singh, 2002, OS; CT EP

Note: Complete reference information for each study is available from the authors on request. (2) = the presence of independent samples.

^aSources are abbreviated as follows: *Applied Economics* (AE), *American Economic Review* (AER), *Academy of Management Journal* (AMJ), *Administrative Science Quarterly* (ASQ), *British Journal of Management* (BJOM), *Dissertation* (D), *Human Resource Management* (HRM), *Industry and Innovation* (II), *International Journal of Production Economics* (IJPE), *International Journal of Research in Marketing* (IJRMKT), *Information Systems Research* (ISR), *Journal of Applied Business Research* (JABR), *Journal of the Academy of Marketing Sciences* (JAMS), *Journal of Business-to-Business Marketing* (JBBMKT), *Journal of Business Research* (JBR), *Journal of Business Venturing* (JBV), *Journal of Economic Behavior & Organization* (JEBO), *Journal of Economics and Management Strategy* (JEMS), *Journal of International Business Studies* (JIBS), *Journal of International Marketing* (JIMKT), *Journal of Management and Governance* (JMG), *Journal of Marketing* (JMKT), *Journal of Marketing Research* (JMKTR), *Journal of Management Studies* (JMS), *Journal of Management* (JOM), *Journal of Operations Management* (JOPRM), *Journal of Political Economy* (JPE), *Journal of Services Marketing* (JSM), *Journal of Supply Chain Management* (JSCM), *Journal of Strategic Marketing* (JSMKT), *Managerial and Decision Economics* (MDE), *Management International Review* (MIR), *Management Information Systems Quarterly* (MISQ), *Management Science* (MS), *Omega* (O), *Organization Science* (OS), *Public Performance and Management Review* (PPMR), *Small Business Economics* (SBE), *Strategic Management Journal* (SMJ), and *Working Paper* (WP).

^bConstructs-captured codes are abbreviated as follows: Asset Specificity (A), Technological Uncertainty (T), Volume Uncertainty (V), Behavioral Uncertainty (B), Transaction Frequency (F), Competence-Based Trust (CT), Integrity-Based Trust (IT), Ex Ante Transaction Costs (EA), and Ex Post Transaction Costs (EP).

Notes

1. We define an IOR domain as a bounded set of interactions that is isolated from other sets of interactions between partners in an exchange relationship such that they require their own contractual arrangements (cf. Connelly, Miller, & Devers, 2012). IOR partners often conduct exchange based on functional areas (e.g., marketing

or production) or product lines that form obvious domain boundaries (Sitkin & Roth, 1993), and IOR partners often expand their relationship, and the nature of tasks performed, across multiple domains.

2. Some have chosen to limit the label “trust” to rational judgments about a partner’s competence and reliability (e.g., Connelly et al., 2012; Sitkin & Roth, 1993). These authors refer to value judgments about a partner’s motivations as “distrust” (labeling it in accordance with its negative pole; Bachmann, 2001; Hardin, 2004; Searle & Ball, 2004). This work is consistent with our two dimensions insofar as the former is reflective of competence-based trust whereas the latter is consistent with integrity-based trust. Moreover, at the individual level, some describe three dimensions of trust: ability, benevolence, and integrity. In this construction “benevolence connotes a personal orientation” that points to a specific attachment (Mayer et al., 1995: 719), such as the relationship between mentor and protégé. This third dimension is somewhat less applicable at the interorganizational level, and we fold it into integrity-based trust because both are relationally oriented.

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