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## **The Influence of ERP-Vendor Contract Compliance and Transaction-Specific Investment on Vendee Trust: A Signaling Theory Perspective**

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**Abstract:** The successful implementation of Enterprise Resource Planning (ERP) systems is significantly predicated on establishing customer trust, a challenge particularly accentuated in mainland China due to its distinct business and legal environment and a noted high failure rate of ERP projects. Whereas contracts and transaction-specific investments are common strategies to build this trust, their effectiveness remains contested in the existing literature. Specifically, the underlying mechanisms through which detailed contracts influence trust are still not clearly understood. To address these gaps, our study employs signaling theory to conceptualize a model that elucidates how contract completeness, vendor contract compliance, and transaction-specific investment act as trust-building signals in ERP vendor–vendee relationships within the Chinese context. Furthermore, we introduce ownership type as an additional variable, evaluating its influence in shaping customer trust. Our empirical analysis draws on data from 208 Chinese organizations engaged in ERP implementations, revealing nuanced findings. Notably, the vendor’s ownership type, quantified by the degree of foreign ownership, negatively moderates both the results of contract completeness on contract compliance and the subsequent mediation effect on trust, thereby highlighting the critical influence of cultural factors. This study is among the pioneering empirical investigations into the synergistic roles of contract compliance and ownership type in mediating the relationship between contract completeness and trust. Our insights provide a robust foundation for understanding the complexities of contractual and relational governance in ERP vendor–vendee relationships, and we recommend targeted strategies for both vendors and customers to enhance trust in this critical business domain.

**Keywords:** contract completeness, contract compliance, transaction-specific investment, ownership, ERP

### **1. Introduction**

With the prevalence of outsourcing and partnerships, firms operate in an increasingly complex global network of suppliers, buyers, and business partners. This study illuminates the pivotal role of trust in vendor–vendee relationships during the implementation of enterprise resource planning (ERP) systems in mainland China. Such complexity has continued to make ERP system implementation highly challenging. Although it is well understood that ERP implementation failure rates are traditionally high and continue to

be so [1-3], the import of trust becomes especially pronounced in China due to its distinct business and legal environment and frequent mismatches between ERP designs and local market requirements [2; 4; 5].

In ERP projects, trust is not merely a desirable attribute but a critical element influencing a multitude of stakeholders [6-8]. As a complex relational variable that evolves through a history of interactions and experiences between the vendor and the vendee [9; 10], trust is especially vital when the customer (vendee) depends significantly on the vendor's resources and expertise yet lacks the technical capabilities to oversee the quality of the vendor's work [6; 8; 11]. This dependency creates vulnerabilities and exposes the vendee to potential risks, opportunistic behaviors [12], and potential relationship conflicts [3].

Although existing research has explored trust from various angles, it leaves conflicting evidence regarding the relationship between contractual agreements and the development of trust [e.g., 13; 14-17], leading to the call for empirical investigations into the link between contractual and trust-based relational governance. Over the years, a considerable number of empirical studies have responded to such calls. Intuitively, one may assume that contract completeness between vendors and vendees in an ERP context would facilitate trust.<sup>1</sup> However, it is not that simple. Studies have produced conflicting findings regarding the relationship between formal, detailed contract drafting and trust. For instance, although researchers have suggested that trust often fails to effectively replace formal contracting, Woolthuis et al. [21] found through longitudinal case studies that trust and formal contracting both complement and supplement each other. Moreover, some studies suggest that well-drafted contracts can either promote [e.g., 22; 23] or impair trust [24; 25]. For example, conflicting with the claims by Woolthuis et al. [21], Malhotra [26] suggested that overly detailed or excessively rigid contracts can destroy trust. This finding was later supported in an artificial laboratory experiment setting [25]. This inconsistency in findings necessitates further

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<sup>1</sup> An ERP system is a complex strategic information system that integrates various functional areas of an organization [11]. Its implementation is often conducted over months or even years of collaboration between the ERP vendor and vendee. The contractual agreement between the vendor and vendee may range from a simple contract that includes only broad terms of exchange to a detailed contract that precisely specifies each party's responsibilities and each party's remedies and penalties in the event of defaults [18]. By articulating explicit terms in the initial business transaction, detailed contract drafting may help prevent opportunism and defaults on the part of the vendor or vendee [19; 20]. As the firms enter the implementation process, they may gradually rely on trust-based relational governance to manage their relationship. Thus, one may assume that contract completeness would facilitate trust development.

investigation, particularly in the context of ERP vendor–vendee implementation relationships in China. Thus, it is crucial to understand how contract completeness, in terms of the level of details of contract terms, influences ERP customer trust in the implementation process.

The contractual agreement signed before ERP implementation and transaction-specific investments dedicated to the ERP vendor–vendee relationship may have a crucial influence on customer trust during the ERP implementation process. A proper contract specifies terms and conditions between the vendor and the vendee and penalties if terms and conditions are breached, which may help prevent opportunistic behaviors and eventually help enhance customer trust [20; 27]. Moreover, a vendor’s investment in an ERP-implementation project is a strategic action that signals commitment and loyalty to the relationship and enhances customer trust [cf. 28]. However, compliance is a construct that potentially confounds the understanding of the relationship between contract completeness and customer trust. Compliance directly shapes the ERP customer’s faith in the contract and subsequent trust in the relationship [29]. Another key construct that may influence customer trust is the degree to which investments are made specific to the relationship. This is because different degrees of investments made to foster relationship transactions lead to varying levels of risk, dependency, and power relationships between the vendor and vendee [28; 30]—all of which have implications for customer trust. Thus, it is imperative to understand how contract completeness, compliance, and transaction-specific investment influence customer trust in ERP implementations in China.

In the China context, venders (aka customers) are especially vulnerable to Western ERP vendors, who are needed to help with high-volume China-specific customizations and where there can be a substantial misfit in the ERP design to the China market or vendor understanding of the China market [31; 32]. The asymmetry in the know-how between China’s ERP vendors and venders makes this a compelling context for evaluating the relationship between formal ERP contracting and trust. Moreover, the China context provides the unique contextual consideration of ownership type, which affects corporate culture. Namely, in China a vendor could have one of four ownership types, which have further implications on contracting and trust: a (1) state-owned, (2) Chinese privately owned, (3) a joint venture, or (4) foreign-owned.

We ground our inquiry in signaling theory, proposing a model that highlights how these variables serve as signals affecting trust in the China-based ERP vendor–vendee relationship. Specifically, we extend the work of Lai et al. [11] by shifting the focus toward contract compliance and the unique contextual aspects of vendor ownership type in China. Our study seeks answers to the following research questions:

**RQ1.** How does contract completeness affect ERP customer trust?

**RQ2.** What roles does contract compliance play in shaping customer trust?

**RQ3.** How do transaction-specific investments influence customer trust?

Building on signaling theory, we introduce a theoretical model that delineates the ways in which contract completeness, vendor adherence to contracts (contract compliance), and transaction-specific investments function as reliable indicators of credibility, trustworthiness, and commitment. These signals contribute to shaping customer trust within the ERP vendor–vendee dynamics, specifically in the Chinese market. Based on signaling theory, we also consider the potential role of an information index—ownership type (defined as the degree of foreign ownership of the ERP vendor)—plays a role in cultivating vendee trust in the vendor. Furthermore, our model examines contract compliance as a mediating construct between contract completeness and trust while also considering how ownership type moderates these relationships. Lastly, we investigate the interactive effects of transaction-specific investments and contract completeness on trust.

To empirically validate our model, we surveyed 208 managerial professionals from various Chinese ERP customer firms. Our results affirm the hypothesis that contract completeness, contract compliance, and transaction-specific investments made by the ERP vendor substantially influence the level of trust in vendor–vendee relationships. Notably, we found that the ownership type of the ERP vendor not only dampens the positive results of contract completeness on contract compliance but also influences the mediating strength of contract compliance. These findings underscore the critical role that cultural factors play in these relationships.

This research augments previous work by Lai et al. [11] on the roles of relational norms, transaction-specific investments, service quality, and trust in ERP electronic word of mouth (eWOM). Our investigation

shifts the focus toward the roles of contract compliance and culturally related ownership type in the contract completeness-trust relationship. To our knowledge, this is one of the first empirical studies that scrutinizes the multifaceted interplay among contract completeness, contract compliance, transaction-specific investments, and cultural ownership type in building trust. The contributions of this research extend beyond the immediate ERP context. Our empirical findings elucidate the complexities of contractual and relational governance in ERP vendor–vendee relationships, thereby providing potential resolutions for the inconclusive results observed in prior research concerning the contract detail-trust relationship. Additionally, our study refines signaling theory by adapting its core tenets to a Chinese ERP context, offering pragmatic insights for industry practitioners.

The remainder of this paper is structured as follows: First, we provide a literature review discussing trust and its pivotal importance in ERP vendor selection and performance, emphasizing the context of mainland China. Following this, we delve into signaling theory and explain how we have tailored it to explore key signaling variables in ERP vendor–vendee relationships. We then present our research model and associated hypotheses, emphasizing the mediating role of contract compliance and the moderating roles of ownership type and transaction-specific investments. Subsequent sections detail our research methodology, data analysis, and key findings. We conclude by discussing the implications, limitations, and potential avenues for future research.

## **2. Background on Trust and ERP-Vendor Performance**

The focal point of this review is our phenomenon of interest: the role of trust in ERP vendor–vendee relationships. Trust plays a pivotal role in shaping how a vendee perceives the value and quality of its relationship with the ERP vendor [8]. Notably, the presence of trust and a robust vendor–vendee relationship significantly improves the success rate of ERP implementations [7]. Our examination concentrates explicitly on how venders form trust based on the vendor’s behavioral signals and performance metrics.

Many studies have supported the fundamental role of trust in fostering successful business relationships in general [33; 34]. Trust directly contributes to the commitment level in business relationships, serving as

an indicator of a firm's confidence in the reliability and integrity of its business partner [34; 35]. In this context, trust manifests as a firm's willingness to rely on a partner with whom they have established confidence [36].

Interestingly, trust varies from satisfaction, which is generally restricted to short-term relationships and only spans the temporal frame from past to present interactions [c.f. 37]. In contrast, trust is indispensable for setting expectations for ongoing collaboration in long-term business partnerships [38]. Numerous seminal studies in the vendor–vendee domain have explored the evolution and significance of trust [e.g., 39; 40], reflecting its pivotal role in relational outcomes.

Trust in an ERP vendor is multidimensional, encompassing a customer's accumulated knowledge, prior experience, and resultant confidence in both the product and the brand [41]. This form of trust has been empirically shown to be a decisive factor in the buyer's purchasing choices [42]. Subsequently, the trust engendered in the vendee translates into strategic advantages for the vendor, such as reduced negotiation, transaction, and control costs, as well as the opening of avenues for future business engagements—potentially at premium pricing tiers [43].

Recognizing these benefits, ERP vendors often undertake intentional initiatives aimed at fostering trust, typically by nurturing attentive and caring relationships with their vendees [44]. The criticality of such trust cannot be overstated, particularly in ERP vendor–vendee dynamics [7; 8; 45], where the failure rate of ERP implementations is notably high [1-3; 46; 47]. In an ERP implementation project, the ERP software modules often require considerable customization to meet the customer's specific business needs [46]. Such customization often leads to the customer's dependence on and vulnerability to the vendor and thus requires substantial levels of trust [11]. At the ERP-implementation stage, customers are vulnerable because they lack the technical knowledge to monitor and control the quality of the vendor's customization, and when problems or failures emerge, it is often too late for the customer to pursue technical solutions or legal actions [8; 11].

In the Chinese market, vendees face heightened vulnerability when engaging with Western ERP vendors. This vulnerability is largely attributed to the pronounced misalignment between Chinese business



norms and the original design of Western ERP software [31; 32]—creating conflict in areas such as corporate culture [48], business processes [49], and IT infrastructure [48]. The misalignment between Western ERP systems and Chinese business processes is one of the biggest challenges to ERP implementation in China. For instance, many Chinese manufacturers employ unique, intuition-driven business processes. The introduction of a Western ERP system often necessitates drastic alterations—or even the complete abandonment of these established workflows [49].

In some instances, adapting the business to fit the ERP system might be unfeasible. Therefore, customization of the ERP system becomes imperative to align with the specific requirements of the Chinese business landscape. Such adaptations may involve modifications to the production planning and purchase control modules to better suit unique Chinese application scenarios. Additionally, certain financial control modules might need to be omitted or restructured due to incongruities in accounting and taxation systems between China and Western countries [49]. China-specific challenges related to cultural nuances, procedural intricacies, and language barriers are compounding these issues. These elements contribute to higher ERP implementation failure rates in China compared to Western countries [2; 4; 5].

Given these complexities, we posit that in the Chinese context, the inherent vulnerabilities associated with ERP implementation can only be mitigated effectively through fostering a high degree of trust between the vendees and vendors, as it serves as a critical component for both relational and implementation success. As mentioned in the introduction, it remains unclear how to nurture this trust due to conflicting signals and results in the literature. Thus, we raised three major approaches that can be used: contract completeness, compliance, and transaction-specific investments. Next, we ground our inquiry in signaling theory, proposing a model that highlights how these variables serve as signals affecting trust in the China-based ERP vendor–vendee relationship. Additionally, we examine the potential role of an information index—ownership type—in shaping the vendee’s perception of and trust in the vendor.

### **3. Theoretical Foundation**

Our study is based on signaling theory [50; 51]. A key reason we do so is that it is an ideal theory for helping explain and resolve information asymmetry, which is replete in the problem context that we are

addressing (e.g., vulnerable vendees in China-based ERP vendor–vendee relationships that are studied for contract completeness, compliance, and transaction-specific investments). Although signaling theory was originally developed by Spence [50] as a solution to the asymmetric-information problem in relationships between employers and prospective employees, its core tenets have been adapted to other contexts, such as revenue drives on Q&A platforms [52], human resource management [53; 54], buyer–seller trust in business-to-business e-commerce [55], piracy of information goods [56], product returns in retailing [57], knowledge contribution [58], fake news on social media [59], supply chain management [60], supplier-induced scarcity in the automobile industry [61], corporate social responsibility [62], the influence of reputation badges on online sales [63], and the perception of corporate affinity and service outcomes [64]. Prior research on vendor–vendee relationships has adopted signaling theory as a foundational theoretical perspective. For instance, Koh et al. [55] based their research model on signaling theory to explore how information indices and signals influence a buyer’s trust. Likewise, Kharouf et al. [65] used signaling theory to explore how signals affect relationship repair in the form of the recovery of customer trust and satisfaction.

Signaling theory is a commonly used contract theory when the contractual relationship exhibits information asymmetry [e.g., 66; 67]. *Information asymmetry* characterizes relational transactions in which one party has more or higher-quality information than the other, thus creating an imbalance of power that may undermine the transaction’s efficiency or success [50; 68]. Connelly et al. [51] explain that “because some information is private, information asymmetries arise between those who hold that information and those who could potentially make better decisions if they had it” (p. 42). Research indicates that information asymmetry is a key factor in decisions concerning quality and the intentions of others [51; 69]. In signaling theory, *quality* “refers to the underlying, unobservable ability of the signaler to fulfill the needs or demands of an outsider observing the signal” [51, p. 43]. Information asymmetry may thus hinder collaboration and trust [68]. The fundamental premise of signaling theory is that the agent side of a transactional relationship conveys “signals,” or relevant information about itself, to the principal side of the relationship, which decodes the signals and responds accordingly with feedback. Signaling theory consists of four key

components: the signaler, the signal, the receiver, and feedback [70]. To enhance trust, the signaler sends the signal, and the receiver decodes it, both attempting to reduce information asymmetry [51].

Formally, the signaler (or agent) is an organizational insider with access to information about a product or organization that outsiders lack, resulting in information asymmetry [50; 51; 71]. Signaling theory assumes that the quality or accuracy of a signal is not directly observable or known to outsiders; it is private, hidden, or privileged, such that the signal conveys missing information [51; 71]. In an ERP vendor–vendee relationship, the ERP customer is the principal or receiver, who receives the signal, whereas the vendor is the agent or signaler, who sends the signal. Formally, the *receiver* (or principal) is an outsider who lacks information about a product or organization but would like to receive it and who is thus likely to benefit from making decisions based on information the signaler (or agent) included in the signal [51; 72]. The customer and the vendor have different interests, and their information about the ERP is asymmetrical, which favors the vendor, who has more information. The ERP customer entrusts the vendor/agent with an essential element of its business function. Thus, the quality of the signals the ERP vendor sends to the ERP customer is paramount in our context.

The *signal* is a message the insider chooses to send; it is informative and thus conveys to the receiver (or principal) private, hidden, or privileged information about the product or organization in question [50; 51]. A core assumption of this theory is that not all signals communicate information equally effectively to outsiders. Thus, two characteristics of a signal affect the likelihood of its efficacy: (1) *signal observability*, which is the signal strength perceived by outsiders, not accounting for distortions and deception [51; 73], and (2) *signal costs*, which are transaction costs associated with implementing a signal, especially with respect to developing a high-quality, credible signal [72]. These costs tend to require a signaler’s time and effort, and “some signalers are in a better position than others to absorb the associated costs” [51, p. 45]. Thus, a key assumption of signaling theory is that “a signal will be reliable when for honest signalers the benefits outweigh the costs while for dishonest signalers the costs outweigh the benefits” [74, p. 304]. Thus, signal quality is paramount. In this study, we thus adapt signaling theory to the ERP context to examine the quality signals that ERP vendors can send to their customers. We propose that the ERP vendor can shape

the ERP customer's trust by leveraging three key signals of credibility, trustworthiness, and commitment: (1) *detailed contracts*, (2) *contract compliance*, and (3) *transaction-specific investment*, respectively.

The final concept of signaling theory is *feedback*, that is, the receiver's reaction to the quality of the signal [51]. This feedback can take many forms. In our context, it concerns the vendee's reaction to a vendor's ERP contract performance and service delivery. Thus, if a receiver (the ERP vendee) feels deceived by a signaler's (ERP vendor) signal quality through poor contract compliance—such as poor ERP implementation, functionality, or service—their feedback could involve private and public complaints, discontinuing the ERP implementation or partial implementation, switching to another ERP firm, or legal contract compliance. Conversely, if an ERP vendee feels satisfied with the signal sent by the vendor's contract performance, their feedback could include positive references to other firms, contract extensions, add-on sales and services, and even joint partnerships.

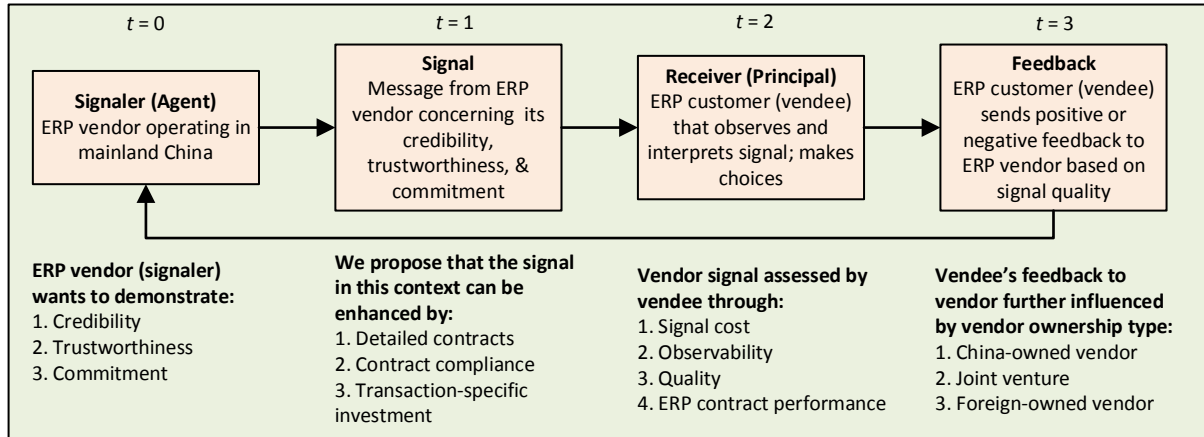
Signaling theory [50] posits that *information indices*—that is, observable, fixed, and relatively unalterable attributes of the agent—may also influence the principal's feedback. In the present study, we examine a relevant information index: the ownership type of the ERP vendor understood in terms of the degree of foreign ownership (Chinese-owned, joint venture, or foreign-owned).

**Figure 1** depicts our adaptation of signaling theory to the ERP vendor–vendee context. In summary, in terms of gaps and opportunities, although previous research has looked at signaling in vendor–vendee relationships, the unique challenges associated with ERP implementations in China—ranging from customization needs to high failure rates—call for a specialized investigation. Signaling theory allows for a nuanced examination of how specific signals, such as contract details and compliance, can offset the inherent vulnerabilities seen in these complex transactions. The focus on “transaction-specific investments” also offers a more granular understanding of how ERP vendors can proactively signal a commitment to prospective vendees, thereby fostering trust.

#### **4. Hypothesis Development**

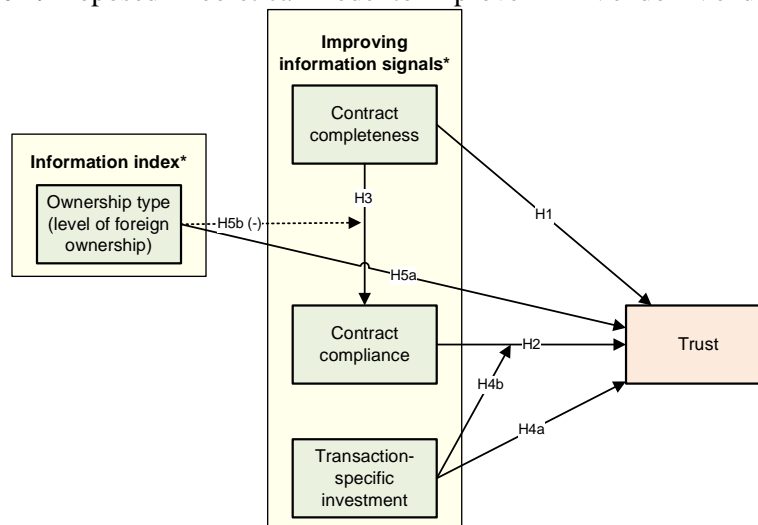
Based on our contextualized version of signaling theory, we propose a testable theoretical model, as depicted in **Figure 2**. Our model aims to explain how the information signals conveyed to the vendee by

**Figure 1.** Adaptation of Signaling Theory to the China ERP Vendor–Vendee Context



an ERP vendor through detailed contracts, contract compliance, and relationship-specific investment influence the vendee’s trust. Additionally, we examine the potential role of an information index, ownership type, in shaping the vendee’s perception of and trust in the vendor. We propose that contract completeness signals the vendor’s credibility to its customer and has both a direct positive effect on customer trust and an indirect positive effect on trust, mediated by contract compliance. Transaction-specific investments, which signal the vendor’s commitment to the relationship, not only directly influence customer trust but also moderate the relationship between contract compliance and customer trust. Finally, ownership type not only positively shapes customer trust but also negatively moderates the strength of the tie between contract completeness and contract compliance.

**Figure 2.** Proposed Theoretical Model to Improve ERP Vendor–Vendee Trust



*Note.* These constructs were contextualized from signaling theory to our ERP vendor–vendee context; the dashed line indicates a negatively predicted relationship for the moderation effect of H5b.

#### **4.1. Signal of Credibility and Goodwill: Contract Completeness**

We propose that the completeness of the contract between an ERP vendor and a vendee is a key signal in the vendee's formation of trust in the vendor. The completeness level of a contract is thought to lead to various trust dynamics [75]. Intuitively, as businesses gradually build mutual trust based on increasingly frequent interactions, the parties will rely more on trust-based relational contracting, and thus, the importance of detailed contracts is expected to decrease. However, the findings of prior studies of the effect of detailed contract drafting on trust are mixed. Whereas some researchers have argued that trust is negatively related to detailed contract drafting, others have suggested the reverse. For instance, Malhotra and Murnighan [25] found that the use of detailed contract drafting signifies the lack of sufficient trust and eventually negatively affects trust. Likewise, Mayer and Argyres [76] suggested that the existence of adequate trust obviates the need for detailed contract drafting. However, a substantial amount of research has demonstrated that detailed contract drafting positively influences trust. Poppo and Zenger [23] showed that detailed contract drafting positively influences trust. Ryall and Sampson [27] also found that the degree of detail of a contract is positively related to the frequency of transactions and trust between the parties. Other work has argued that failing to detail conditions and terms in the ERP contract increases incentives for short-term opportunism and lowers the expectations of cooperation [10; 77]. Lumineau [78] recently proposed that contractual control enhances trust by influencing the calculative judgments underlying trust. Given this dichotomy, further exploration of the relationship between trust and the level of ERP-contract detail is warranted.

Despite the mixed results, research [23; 27; 78] increasingly suggests that detailed contract drafting plays a positive role in fostering customer trust. Oliver Hart, who received the Nobel Memorial Prize in Economic Sciences in 2016 for his work on contract theory, suggests that the incompleteness of contracts leads to unpredictability in the relationship's future [e.g., 79]. A contract that is unpredictable because it lacks detailed conditions and terms inevitably leads to opportunistic behavior in the form of defaults. Contract completeness benefits inter-organizational relationship building [80] and weakens contractors' opportunistic behavior [81]. With a detailed and complete contract, the ERP vendor sends a signal of

credibility and goodwill to the vendee because when contract terms and conditions are explicitly detailed, the actions of the parties involved will be constrained by the binding force of a contract. As a result, the vendor and the vendee will be less likely to engage in opportunistic behaviors [80]. Based on the above discussion, we hypothesize:

**H1.** Contract completeness positively influences an ERP customer's trust.

#### **4.2. Signal of Trustworthiness: Contract Compliance**

We hypothesize that contract compliance is another key signal the ERP vendor sends to the vendee. In this section, we examine the indirect effect of contract compliance on the relationship between detailed contract drafting and trust. Previous research has mainly focused on the initial design of contracts, often ignoring how such contracts are enforced [13]. However, contracts must be complied with to be meaningful. As Hobbes put it, "Covenants without the sword are mere words" [82, Chapter XVII]. Contracts can be complied with to varying extents, ranging from rigorous to slack enforcement [83-85].

It can be argued that the more detailed a contract is, the higher its likelihood of being complied with. The reasoning is straightforward: When a contract specifies in detail each party's obligations in a business transaction as well as the remedies for failures and penalties for defaults, the contract's terms will be less ambiguous, which prevents both parties from being opportunistic and abusing the contract by taking advantage of the ambiguity of its terms. Moreover, if the contract clearly defines penalties for defaults, the contracting parties will naturally have fewer incentives to break promises and will be more likely to comply with the contract.

Contract drafting and compliance are often subject to the influence of the regulatory and legal environment. For instance, in China, firms tend to have a higher sense of uncertainty when dealing with a vendor-vendee relationship than in Western countries with stronger regulatory frameworks [86; 87]. In China, moreover, such relationships tend to be based on informal mechanisms of cooperation and trust, thus creating uncertainty [30]. Uncertainty is often associated with frequent contract defaults and the inability of the legal and regulatory systems to deter opportunistic behaviors, making the need for trust all the more important [86]. To alleviate such uncertainty, firms may be motivated to pursue the collation and the

creation of formal rules through detailed contract drafting [88], which offers the assurance of specific rights and obligations of the parties [20], deters opportunistic behaviors, and ultimately enhances the contract's compliance.

Detailed contract drafting has been found to enhance trust [22; 23]. Such enhancement may be fostered by contract compliance because the effective compliance of the contract eventually promotes cooperation, reinforces the parties' commitment to the relationship [76], and ultimately fosters trust. Conversely, relationship violations, in the form of defaults on contract terms, undermine customer trust and loyalty [89]; this is especially true in China, where relationships, cooperation, and trust are at a premium [30]. Moreover, effective contract compliance is likely to communicate to the contracting parties the importance of fulfilling the contract's terms and to further reduce the likelihood of future opportunism, which eventually enhances the trust between the contracting parties [29]. Summarizing this section, we hypothesize:

**H2.** An ERP vendor's contract compliance positively affects customer trust.

**H3.** The effect of contract completeness on ERP customer trust is mediated by contract compliance.

#### **4.3. Signal of Commitment: Transaction-Specific Investments**

The third key signal that we hypothesize the ERP vendor can send to the vendee is a transaction-specific investment. The vendor's *transaction-specific investment* refers to investments made by the vendor in the form of software customization, training, expertise, or processes—specifically for the transaction needs of the ERP customer [30]. Transaction-specific investment is strategically powerful because it can “produce idiosyncratic, non-recoverable, customized and supported assets for a particular partner or exchange relationship, thus rendering the second-best use value lower than the primary transaction value” [28, p. 167]. Hence, vendor investment is essential to ERP implementation success [90]. ERP implementation often involves extensive software customization to cater to the customer's business needs. An investment the ERP vendor devotes to a particular customer for the purposes of needs analysis, software customization, end-user training, and onsite customer support may enhance the customer's “process-based experience” [8] and ultimately enhance ERP customer trust. Transaction-specific investment is considered an important driver of vendor–vendee relationships because it effectively serves as the vendor's gesture of commitment



and loyalty to the relationship, which influences customer trust. The relationship-specific nature of the investment makes it essentially an effective “self-lock-in” mechanism that increases the ERP vendor’s dependence on the customer [91] and increases its switching cost for leaving the relationship [92-94].

However, the imbalanced dependence resulting from transaction-specific investments makes such investments vulnerable to opportunistic behaviors [95], and this is a common issue in ERP-vendor selection [12]. Thus, safeguarding transaction-specific investments is naturally critical for the investing party. Various mechanisms have been proposed as safeguards for transaction-specific investments. For instance, in a principal–agency context, Heide and John [95] proposed that the agency could safeguard a transaction-specific investment by making more offsetting investments and thus enhancing the replaceability of the principal. However, the traditional approach to safeguarding transaction-specific investments is a formalized contract that details various conditions and terms to deter opportunistic behaviors [95]. When such a contract is lacking or if the contract is not complied with, trust is often the only thing to depend on for protecting transaction-specific investments.

Prior studies have also revealed the interplay among contractual control, trust, and transaction-specific investments. For example, Lyons [96] found that the use of formal contracts is highly correlated with specific investments, whereas Stump and Heide [97] suggested that transaction-specific investments are associated with trust. Nunn [98] investigated transaction-specific investments, contracts, and their influence on a country’s competitive advantage and demonstrated that good contract compliance works along with relationship-specific investments to achieve competitive advantages. Moreover, a recent study [99] revealed that asset specificity interacts with contract specificity in its influence on relational performance. Because *trust* is positively aligned with relational-performance indicators such as competitive advantage [100], we predict that transaction-specific investments will interact with contract compliance in their influences on trust.

**H4a.** An ERP vendor’s transaction-specific investments positively influence customer trust.

**H4b.** Transaction-specific investments function as a positive moderator in the relationship between contract compliance and trust.

#### **4.4. Information Index: Ownership Type**

Using signaling theory [50], we also explore the role of an information index: ownership type understood in terms of the level of foreign ownership (Chinese-owned, joint venture, or foreign-owned). An ERP vendor's ownership type and associated information cues may shape the ERP customer's perception and trust. Prior research has suggested that the national origin of a company and associated value systems and cultural traits affect others' expectations about its behaviors [101]. A company owned by a country commonly regarded as untrustworthy is more likely to be perceived as untrustworthy than a company in a country commonly regarded as trustworthy [102].

The way in which detailed contract drafting influences contract compliance may also differ across sociocultural settings. In this study, we evaluate the moderating role of a key factor associated with the sociocultural background of the contracting party—namely, ownership type in terms of foreign ownership—in the relationship between detailed contract drafting and contract compliance. The role of ownership type, which is a major contextual factor in our study, can be viewed through the sociocultural lens of organizational culture. Organizations with different ownership types tend to have different organizational cultures. Ralston et al. [103] empirically compared Chinese businesses, in the context of their organizational cultures, with three types of ownership types: foreign-controlled businesses, state-owned businesses, and domestic privately owned businesses. They found that different ownership types are systematically aligned with different organizational cultures in terms of the clan, adhocracy, hierarchy, and market. Prior research has found that organizational culture [104] moderates the way in which detailed contracting influences the vendor–vendee relationship.

Organizations with different types of ownership also tend to have different ethical standards [105]. Ownership may thus play a key role in organizational decisions that have ethical implications. For instance, defaults are more likely in contracts involving two firms from a developing country because contracting actors often have incentives to be opportunistic and not honor contracts [106]. Contract details that clearly articulate obligations and penalties for defaults are thus critical for the compliance of the contract. However, in the absence of a detailed contract, the involvement of foreign investment in such contracting relationships

may enhance confidence in commercial contracts [107] and may improve contract compliance [106]. As a result, the role of contract details is likely to diminish.

The role of ownership can also be viewed from the perspective of the magnitude of interdependence, which is found to positively affect contract compliance [108]. A contracting relationship involving foreign investment is likely to be more interdependent because the contracting parties do not have as many alternatives as they would in a purely domestic business relationship. Therefore, despite its lack of detailed terms, a contract involving firms with a higher degree of foreign ownership is more likely to be enforced—that is, the relationship of detailed contract drafting with contract compliance decreases with the involvement of foreign firms. Ownership type is closely associated with corporate culture, which has been found to moderate the degree to which detailed contracting influences trust building [104]. Summarizing this section, we hypothesize:

**H5a.** An ERP vendor's ownership type in terms of the level of foreign ownership positively affects customer trust.

**H5b.** Ownership type, in terms of the level of foreign ownership, acts as a negative moderator in the relationship between contract completeness and contract compliance.

## **5. Research Method**

We empirically tested our research model using data collected from firms in mainland China that have implemented ERP systems. Again, our work extends that of Lai et al. [11], and we used data pertaining to the relationship between ERP vendors and vendees to empirically test our research model on contract completeness, compliance, transaction-specific investment, ownership type, and trust. China was selected as the setting for the study because of the country's rapid growth in the use of ERP systems and its complicated contract situations, which involve distinct types of vendors and vendees—domestic, joint venture, and foreign investment—and complex issues pertaining to contract compliance and trust. The following sections detail our data collection procedures, data sample, and measurement of constructs.

### **5.1. Data Collection Procedures**

We recruited thirty graduate university students in Beijing, China, as our potential interviewers. We gave these students one day of training in the knowledge and skills related to the interview, including our

project's purpose, interview protocols, and ERP software. Following the training session, we asked the students to go through a mock interview with trainers to become familiar with the interview process. To increase across-interviewer reliability, we gave the participants a standardized script with identical opening and closing remarks and interview questions. Based on the students' performance during the training, we selected 16 students as our interviewers for the research project.

Following the sampling methods of Lai et al. [11], the target firms in our sample were randomly selected from a company database maintained by the Ministry of Commerce of China, which hosts more than 10,000 registered companies. We searched this database and identified approximately 1,800 firms that had implemented ERP. Of these subset of firms, we randomly selected 500 companies for this study. The interviewers contacted the selected companies to obtain information about the members of their ERP committees. Wherever possible, the highest-ranking member of the firm's ERP committee was selected to complete the questionnaire in an onsite interview. A total of 379 companies of the 500 randomly targeted companies initially agreed to be interviewed onsite, and 208 of these were successfully interviewed. The interviews were conducted in Chinese.

We randomly selected 56 surveys from the completed surveys to check the quality, validity, and reliability of the interview process. We contacted the respondents of those surveys and randomly picked a few items from the questionnaire to ask them for a second time. The comparison result did not reveal any significant difference between the first and second responses of the respondents, indicating satisfactory consistency and reliability.

## **5.2. Sample**

**Table 1** profiles the sampled firms. Five of the 208 valid respondents did not report their ownership type in their responses and, thus, were excluded from the analysis. All respondents held managerial positions: 162 (about 78%) of them were senior managers, and 46 (about 22%) were middle-level managers. The sample firms included some service and retail businesses but the majority were manufacturers (about 71%). This distribution was expected because ERP was one of the first key information systems for Chinese manufacturing firms [2; 4; 109]. Chinese firms had diverse ownership types and structures.

**Table 1. Profile of Firms in the Sample**

	Frequency	Percentage
<b>Industry</b>		
Manufacturing	148	71.2
Service	50	24.0
Retailing	10	4.8
<b>Ownership</b>		
Chinese owned	111	53.4
Joint venture	28	13.5
Foreign	64	30.8
<b>Number of employees</b>		
Less than 100	23	11.1
101~499	45	21.6
500~999	30	14.4
1,000~4,999	56	26.9
5,000 or more	54	26.0
<b>Total sales (in millions RMB)</b>		
Less than 10	28	13.5
11~100	41	19.7
101~300	40	19.2
More than 300	99	47.6
<b>Respondent title</b>		
Senior management	162	77.9
Middle management	46	22.1

### 5.3. Measures

To collect the data, we used an approach that combined structured interviews and surveys. First, we developed a survey instrument following a thorough review of the extant literature. Next, we adapted our measures of constructs from the extant literature to strengthen the likelihood of their validity. **Table 2** details the measures, loadings, average variance extracted (AVE) values, and alpha reliability scores.

The *contract completeness* measures were adapted from Wuyts and Geyskens [18] and Gençtürk and Aulakh [110]. The five indicators of this construct measure different perspectives of the level of contract completeness, including: (1) cooperation goals, (2) key performance indicators, (3) rights and responsibilities, (4) how each party is to perform, and (5) what will happen in the case of specific events occurring.

*Contract compliance* was measured with four items that reflected the degree of strictness with which

**Table 2.** Measurement Details

Construct	Measure	Load	AVE	$\alpha$
Contract completeness	1. In dealing with the vendor, our contract precisely defines the cooperation goals.	.82	.75	.92
	2. In negotiating and drafting a contract with the vendor, we specify key performance indicators (KPIs) in terms of cost, time frame, and data quality.	.87		
	3. In dealing with this vendor, our contract precisely defines the rights and responsibilities of each party and states legal remedies for failure to perform.	.89		
	4. In dealing with the vendor, our contract precisely states how each party is to perform.	.87		
	5. In dealing with this vendor, our contract precisely states what will happen in the case of specific events occurring.	.88		
Contract compliance	1. During the collaboration, the contract is the major mechanism to ensure both parties behave properly.	.85	.68	.84
	2. During the collaboration, the contract is the most effective means to deter opportunism behaviors of both parties.	.88		
	3. We routinely assess the vendor's performance and behaviors according to the contract clauses.	.82		
	4. When problems arise, both parties will investigate who holds accountability and accordingly exercise punishments according to the contract.	.73		
Vendor's transaction-specific investment	1. This vendor has spent substantial time and effort to meet face-to-face with our implementation team.	.83	.68	.74
	2. This vendor has made significant investments in adapting its software to meet our special requirements.	.73		
	3. This vendor has built a team to handle our company's ERP implementation.	.91		
Trust	1. The vendor is competent in their field.	.72	.59	.91
	2. The vendor is a leading company in their field.	.72		
	3. The vendor is frank when dealing with us.	.74		
	4. The vendor is honest about their problems.	.76		
	5. Even when explanations given by the vendor are unlikely, they are the truth.	.74		
	6. The vendor is open to dealing with us.	.83		
	7. Our organization can count on the vendor to be sincere.	.84		
	8. We can count on the vendor to consider how their decisions will affect us.	.79		
	9. The vendor puts customers' interests before their own.	.75		
Ownership type	Based on capital source, the vendor is: (1) state-owned, (2) Chinese privately owned, (3) a joint venture, or (4) foreign-owned	1.00	--	--

Note.  $\alpha$  = Cronbach's alpha reliability score; AVE = average variable extracted.

the parties adhered to the contract. These items not only assessed whether the contract was enforced to ensure appropriate behaviors and to deter opportunism but also measured the extent to which the contract clauses were used to assess contractual parties' performance and the degree to which the contract terms were enforced by means of investigating accountability and punishments in the event of defaults.

*Trust* was measured using nine items adapted from the literature that measure two major aspects of trust that are relevant in our context, reflecting the vendee's trust in the vendor: (1) the trusted party's capability, reliability, and integrity [34] and (2) the trusting party's willingness to depend on the vendor [36].

*The vendor's transaction-specific investments* refer to the investments that an ERP vendor committed to a transactional relationship with a specific customer. Transaction-specific investment has four major facets—systems, procedures, human assets, and physical assets [111]. Physical assets are irrelevant in ERP implementation because physical assets, such as servers and routers, are not specific to a given ERP vendor, so we excluded it as a measure of transaction-specific investment in our study. Drawing on Rokkan et al. [112] and Corsten and Kumar [113], we constructed the measures to reflect the vendor's investments in a relationship, the process of restructuring the business to fit the relationship requirements, and the establishment of an implementation team. Consistent with Rokkan et al. [112], the vendor's transaction-specific investments were measured by the customer's perceptions of their investment, which is appropriate, as suggested by some prior researchers [e.g., 114], because organizational perceptions may be more closely related to organizational strategies, actions, and performance than the objective measures.

All four of the constructs discussed above were measured using 5-point Likert-type scales, where “1” indicates “strongly disagree” and “5” indicates “strongly agree.” Based on the capital source of the business, *ownership type* was measured on a 3-point scale that consisted of the categories “Chinese,” “joint venture,” and “foreign investment.”

## **6. Data Analysis and Results**

We used structural equation modeling (SEM) with AMOS 25 to test our model following the two-step approach outlined in Anderson and Gerbing [115]. First, we analyzed the measurement model using confirmatory factor analysis (CFA). We then estimated the structural model to test the research hypotheses. The macro PROCESS under SPSS 25 was used to examine the conditional process model [116].

### **6.1. Measurement Validation**

The CFA for the measurement model showed acceptable fit statistics in terms of the *chi-square test*  $\chi^2_{(220)} = 243.28$ , *root mean square error of approximation* (RMSEA) = 0.075, *normed fit index* (NFI) = 0.92,

comparative fit index (CFI) = 0.94, incremental fit index (IFI) = 0.95, and standardized root mean square residual (SRMR) = 0.047. The constructs were assessed in terms of convergent validity, discriminant validity, and reliability. The factor loadings generated by the bootstrapping procedure are reported in **Table 2**. All the path loadings were greater than 0.7 and significant at the 0.001 level, demonstrating convergent validity at the item level. The AVE of all constructs was greater than 0.5, indicating convergent validity at the construct level. The constructs also demonstrated good discriminant validity: The square root of the AVE of every given construct (see **Table 3**) was greater than the standardized correlations of the given construct with any other constructs. All the Cronbach's alpha values were at least 0.8 (see **Table 2**), indicating satisfactory reliability.

**Table 3.** Measurement Model Statistics

<b>Construct</b>	<b>Mean</b>	<b>SD</b>	<b>X<sub>1</sub></b>	<b>X<sub>2</sub></b>	<b>X<sub>3</sub></b>	<b>X<sub>4</sub></b>	<b>X<sub>5</sub></b>
Contract completeness (X <sub>1</sub> )	3.86	0.82	<b><u>0.87</u></b>				
Contract compliance (X <sub>2</sub> )	3.65	0.81	0.74**	<b><u>0.82</u></b>			
Transaction-specific investments (X <sub>3</sub> )	3.57	0.90	0.54**	0.45**	<b><u>0.68</u></b>		
Ownership (X <sub>4</sub> )	NA	NA	0.08 <sup>ns</sup>	0.05 <sup>ns</sup>	0.11 <sup>ns</sup>	NA	
Trust (X <sub>5</sub> )	3.70	0.69	0.65**	0.56**	0.50**	0.13 <sup>ns</sup>	<b><u>0.77</u></b>

*Note.* Square roots of the average variance extracted are bolded and underlined and shown on the diagonal; correlation coefficients are shown off the diagonal. \*\* = Correlation is significant at the 0.01 level (two-tailed); NA = not applicable; ns = not significant.

## 6.2. Assessing Common Method Bias

Common method bias (CMB) was assessed by following the procedures suggested by Schwarz et al. [117]. With organizational innovativeness as the marker variable, the CFA marker-variable approach was used. Organizational innovativeness was assessed using three items adapted from Reimers [109]: (1) Our firm tends to be the first to market with innovative new products and services (**OI1**); (2) Our firm tends to be the first to develop a new process technology (**OI2**); (3) Our firm tends to be the first to recognize and develop a new market (**OI3**). We estimated and compared five models (see **Table 4**), which indicated that any present CMB would not unduly influence the hypothesis testing of our study.

## 6.3. Hypothesis Testing

A two-step approach was used to test our hypotheses. The first step ran the base model without any interaction terms and covariates to obtain the main effects. This structural model had acceptable goodness of fit,  $\chi^2(296) = 281.63$ , RMSEA = 0.092, NFI = 0.93, CFI = 0.92, IFI = 0.96, and SRMR = 0.052. The



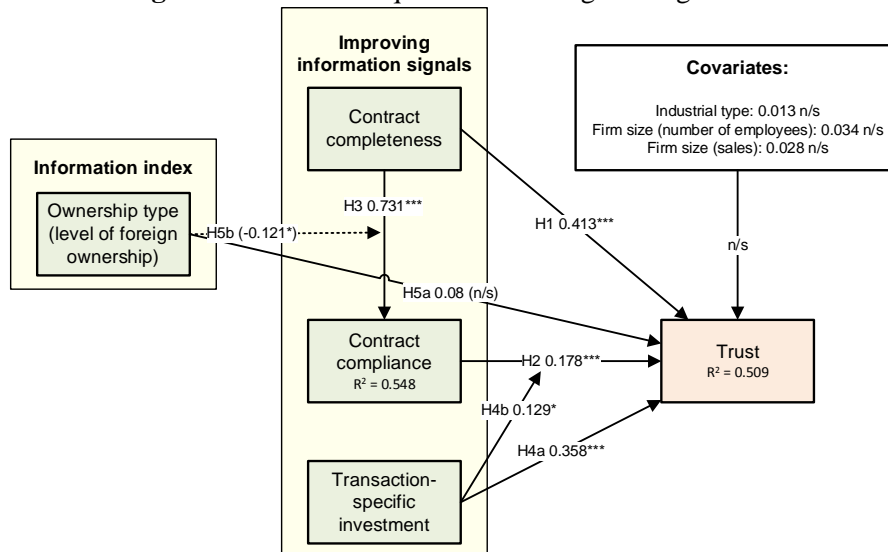
**Table 4.** Chi-square Values, Goodness-of-Fit Values, and Model Comparison Tests (CFA Marker)

Model	$\chi^2$	df	CFI
CFA	510.89	284	0.93
Baseline	520.12	294	0.91
Method-C	505.27	293	0.92
<b>Method-U</b>	<b>438.57</b>	<b>271</b>	<b>0.92</b>
Method-R	442.19	281	0.91
Chi-square model comparison tests			
$\Delta$ Models	$\Delta\chi^2$	$\Delta$ df	$\chi^2$ critical value at 0.05
Baseline vs. Method-C	14.85.84**	1	3.84
Method-C vs. Method-U	66.70**	22	33.92
Method-U vs. Method-R	3.62	10	18.31

Note. The comparison results suggest the Method-U model is accepted; \*\* = significant at  $p < 0.05$  level. CFA = confirmatory factor analysis; CFI = comparative fit index; df = degrees of freedom.

second step added the interaction terms covariates into the base model. The results of both steps are shown in **Figure 3**. In this step, the  $R^2$  of trust was 0.509, indicating that 50.9% of the variance of trust was accounted for by its antecedents, and the  $R^2$  of contract compliance was 0.548, indicating that 54.8% of the variance of the variable was accounted for by contract completeness.

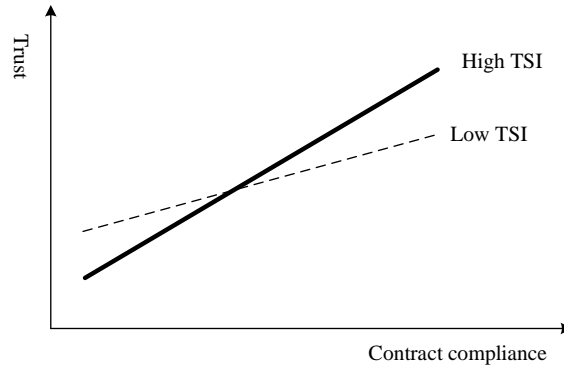
**Figure 3.** Structural Equation Modeling Testing Results



As **Figure 3** shows, contract completeness was found to have a direct, positive influence on trust ( $\beta = 0.415, p < 0.001$ ), suggesting support for H1. The hypothesis concerning the positive influence of contract compliance on trust (H2) was also supported ( $\beta = 0.182, p < 0.001$ ). Consistent with our model predictions, the path from contract completeness to contract compliance was significant ( $\beta = 0.731, p < 0.001$ ), supporting H3; the path from transaction-specific investments to trust was significant ( $\beta = 0.363, p < 0.001$ ),

supporting H4a. Transaction-specific investment significantly enhanced the influence of contract completeness on trust (i.e., positive moderation effect;  $\beta = 0.129, p < 0.05$ ), suggesting support for H4b. Specifically, when transaction-specific investment is high, contract compliance becomes more effective in nurturing trust (see **Figure 4**).

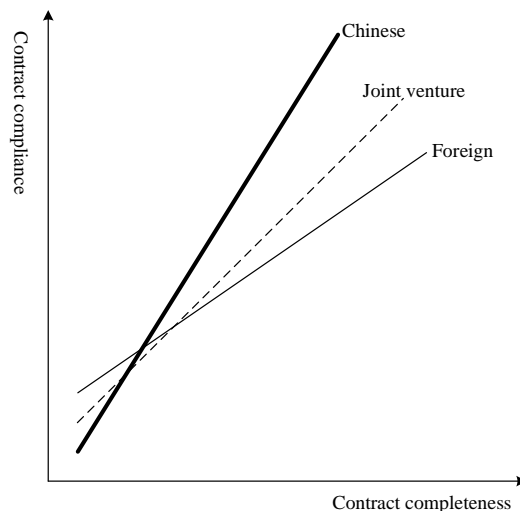
**Figure 4.** Positive Moderation Effect of Transaction-Specific Investment on the Relation between Contract Compliance and Trust



Note. TSI = Transaction-specific investment.

Similarly, the interaction term indicated a significant negative moderation effect of ownership type on the relationship between contract completeness and contract compliance ( $\beta = -0.121, p < 0.05$ ), suggesting support for H5b. The negative coefficient suggested that the influence of contract completeness on compliance was weaker when the company was more foreign-controlled (see **Figure 5**). By contrast, the influence of ownership type on trust was not significant ( $\beta = 0.07, ns$ ), suggesting no support for H5a.

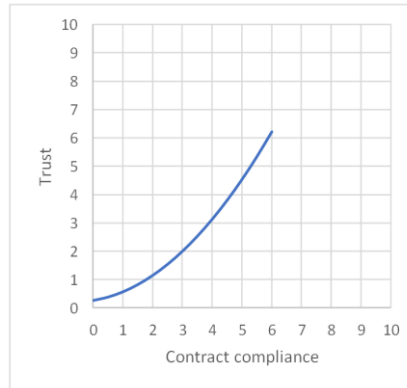
**Figure 5.** Negative Moderation Effect of Level of Foreign Ownership on the Relation between Contract Completeness and Contract Compliance



#### 6.4. Post Hoc Exploration of Curvilinearity

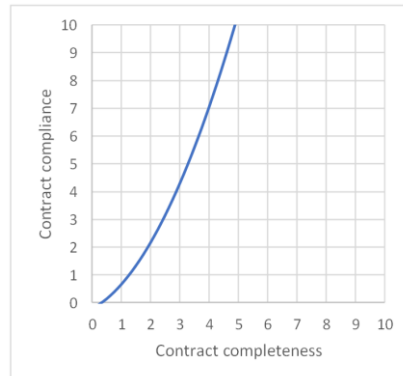
Given the importance of our model's direct relationships between contract completeness and contract compliance on one hand and contract compliance and trust on the other (contract compliance and transaction-specific investment were added for moderation purposes), we followed leading practice by conducting a post hoc exploration to determine whether any of these relationships were curvilinear, introducing squared terms into our model [e.g., 118; 119; 120]. Recall that the hypothesis of the direct positive influence of contract compliance on trust (H2) was supported ( $\beta = 0.182, p < 0.001$ ). In the test for curvilinearity (contract compliance<sup>2</sup> → trust), this relationship continued to be supported ( $\beta = 138, p < 0.05$ ) and was increasingly positive (i.e., nonlinear positive), as **Figure 6** illustrates.

**Figure 6.** Nonlinear Effect of Contract Compliance on Trust



Recall that the direct path from contract completeness to contract compliance was significant ( $\beta = 0.731, p < 0.001$ ), supporting H3. In the test for curvilinearity (contract completeness<sup>2</sup> → contract compliance), this relationship was also supported ( $\beta = 0.311, p < 0.05$ ) and increasingly positive (i.e., nonlinear positive), as **Figure 7** shows.

**Figure 7.** Nonlinear Effect of Contract Completeness on Contract Compliance



## 6.5. Post Hoc Mediation and Moderated Mediation Analysis

The influence of contract completeness on trust was significant ( $r = 0.65$ ,  $p < 0.01$ ), as detailed previously in **Table 3**. After adding contract compliance between contract completeness and trust, the influences of contract completeness on contract compliance and of contract compliance on trust were also significant (H2 and H3 supported), indicating a possible mediation effect of compliance. We estimated the indirect effects using Bayesian estimation with bias-corrected bootstrapping following the leading practice in the methods literature [121-123]. The result, a 95% bias-corrected bootstrap confidence interval ([0.113, 0.145]), further confirmed this mediation.

Although we found a significant moderation effect of ownership and a significant mediation effect of contract compliance, a moderated mediation relationship may exist. In a moderated mediation, the strength of a mediation effect is contingent on the level of a moderator [122]. We predicted that the mediating effect of contract compliance on the relationship between contract completeness and trust would be influenced by ownership type. Specifically, we predicted that the influence of contract completeness on trust would be facilitated more strongly through enforcing a contract for Chinese companies than foreign companies.

To directly test this prediction, we examined the conditional indirect effect of contract completeness on trust—through contract compliance—at three levels of ownership: Chinese (0), joint venture (1), and foreign (2). We standardized all continuous variables before running the analyses. The small sample size of joint venture companies ( $n = 28$ ) prohibited the use of SEM-based multigroup comparison analysis. Instead, we ran a regression analysis based on ordinary least squares (OLS). We first obtained the latent scores of our constructs and then performed a moderated mediation analysis. We used PROCESS (an SPSS macro), suggested by Preacher et al. [122], with a bootstrap analysis on 10,000 resamples, from which bias-corrected 95% confidence intervals (CIs) were estimated. **Table 5** presents the results.

As **Table 6** shows, in terms of ownership, the conditional indirect effects of contract completeness on trust through contract compliance were 0.133, 0.116, and 0.099 (see Panel C) for Chinese-owned, joint venture, and foreign-owned companies, respectively, which were significant at the 0.05 significance level. The differences between those conditional indirect effects (i.e., 0.133, 0.116, and 0.099) were significant

**Table 5. Moderated Mediation Regression Results (Panel A and B)**

<b>Panel A:</b>		<b>Mediator Variable Model</b>			
Predictor		$\beta$	<i>SE</i>	<i>t</i>	<i>p</i>
Constant		0.016	0.066	0.247	0.805
Contract completeness (H <sub>3</sub> )		0.731	0.048	15.386	0.000
Ownership		-0.009	0.050	-0.181	0.856
Contract completeness × Ownership (H <sub>5a</sub> )		-0.108	0.051	-2.109	0.036

<b>Panel B:</b>		<b>Dependent Variable Model</b>			
Predictor		$\beta$	<i>SE</i>	<i>t</i>	<i>p</i>
Constant		-0.076	0.074	-1.017	0.311
Contract completeness (H1)		0.434	0.079	5.474	0.000
Ownership		0.087	0.056	1.547	0.124
Contract completeness × ownership		-0.090	0.058	-1.556	0.121
Contract compliance (H2)		0.157	0.079	1.999	0.047
Specific investment		0.176	0.063	2.790	0.006
Contract compliance × specific investment (H4b)		0.121	0.048	2.542	0.012

Note.  $\beta$  = beta coefficient; SE = standard error.

**Table 6. Moderated Mediation Regression Results (Panels C and D)**

<b>Panel C:</b>		<b>Conditional Effects</b>				
Ownership		$a \times b$	<b>95% CI</b>	<i>SE</i>	<i>t</i>	<i>p</i>
0 (Chinese)		0.133	(0.010, 0.299)	0.067	1.969	0.049
1 (joint venture)		0.116	(0.007, 0.252)	0.059	1.979	0.048
2 (foreign)		0.099	(0.005, 0.207)	0.048	2.059	0.041

<b>Panel D:</b>		<b>Conditional Effects</b>				
Transaction-specific investment		$a \times b$	<b>95% CI</b>	<i>SE</i>	<i>t</i>	<i>p</i>
Mean – 1 std. deviation		0.078	(-0.061, 0.231)	0.041	1.211	0.226
Mean		0.112	(0.007, 0.234)	0.565	1.977	0.048
Mean + 1 std. deviation		0.146	(0.017, 0.296)	0.069	2.127	0.033

Note.  $n = 203$ . Unstandardized regression coefficients are reported. CI = confidence interval; SE = standard error.

( $\beta = -0.108$ ,  $p = 0.036$ ; see Panel A). Following Preacher et al. [122], we further generated resampled estimates to bootstrap construct CIs. Bootstrapping mitigates concerns regarding the sampling and estimate distributions. The conditional indirect effect is significant if the CI does not contain zero. Our results (see Panel C in **Table 6**) from the bootstrap-derived CIs revealed that the mediation effect of contract compliance was not universal across different forms of ownership. Instead, this mediation effect (i.e., contract completeness → contract compliance → trust) was weaker for foreign-controlled companies than for Chinese-controlled companies.

Similarly, the conditional effects of contract completeness on trust were also tested in terms of transaction-specific investment. The mediation effects were 0.078, 0.112, and 0.146 when the values of transaction-specific investment were its mean minus one standard deviation, its mean, and its mean plus

one standard deviation, respectively (Panel D, **Table 6**). The differences among those mediation effects were also significant ( $\beta = 0.121, p = 0.012$ ). These results suggested that the mediation effects were stronger when there was a more transaction-specific investment.

In summary, we found that the bridging effect of contract compliance on the relationship between contract completeness and trust was contingent on ownership and transaction-specific investment. However, ownership and transaction-specific investment exerted their influences in diverse ways. Ownership exercised its influence primarily on the nature of the relationship between contract completeness toward contract compliance; that is, foreign-controlled companies were more likely to comply with the contract than their Chinese-controlled counterparts. By contrast, the influence of transaction-specific investment occurred primarily through its complementary influence on contract compliance. Such contract compliance was more effective in promoting trust when there was a larger transaction-specific investment.

## **7. Discussion**

The effective deployment of ERP systems hinges critically on establishing a robust foundation of trust between vendors and vendees. This challenge is magnified in mainland China, where the unique blend of business norms and legal frameworks intersects with an alarmingly high rate of ERP project failures. Though detailed contracts and transaction-specific investments are often employed as strategies to foster this trust, their actual efficacy remains a topic of contentious debate in academic literature. In particular, the specific mechanisms by which comprehensive contracts engender trust are inadequately explored.

To bridge this knowledge gap, our research leverages signaling theory to construct a nuanced model mapping the mechanisms in which contract completeness, vendor compliance, and transaction-specific investments operate as trust-building signals in Chinese ERP vendor–vendee relationships. Additionally, we introduce a novel variable—the ownership type of the vendor—and assess its association with customer trust. The findings suggest that contract completeness has not only a significant, direct positive effect on customer trust but also an indirect effect on trust, mediated by contract compliance. Moreover, the results reveal that ownership type and transaction-specific investment moderate the strength of the relationship between contract completeness and contract compliance.

## **7.1. Major Findings and Implications for Business Practice**

In contrast to the common belief that highly detailed contract drafting might undermine trust, this study aligns with recent research [e.g., 27] by demonstrating that comprehensive contracts increase trust among ERP customers. This influence occurs both directly and indirectly through the mediation of contract compliance. To establish trust and solidarity, businesses may be tempted to draft contracts in overly generic terms, lacking sufficient detail. However, our study illustrates that such practices may, in fact, be counterproductive, particularly in a Chinese context.

Insufficient detail in ERP vendor–vendee contracts can result in ambiguity and foster opportunistic behavior, ultimately eroding customer trust. Furthermore, our findings highlight the mediating role of contract compliance in the relationship between contract completeness and trust. A plausible explanation for this phenomenon is that strict compliance with a contract reduces the occurrence of opportunistic actions and increases commitment levels, consequently fostering greater cooperation [76] and nurturing trust. These findings underscore the crucial significance of contract compliance in governing ERP contracts, especially in a Chinese context. Regardless of how detailed and comprehensive an ERP contract may be, without rigorous compliance, the contracting parties may fail to trust each other. This is because lax enforcement of a contract offers minimal assurance of rights or penalties. Conversely, strict adherence to a contract provides both parties with greater certainty regarding the consequences of their actions, thereby enhancing trust.

The unique role of contract compliance in the relationship between contract completeness and trust offers valuable managerial insights into the strategic governance of ERP vendor–vendee contracts, particularly in a Chinese business environment. Emphasizing the importance of contract compliance, even in cases where ERP vendors and venders share a close relationship, becomes imperative. Neglecting strict contract compliance could potentially compromise the long-term relationship and undermine trust. In situations involving contractual defaults, the party facing a breach of contract may occasionally opt not to enforce the contract’s terms for damage compensation or penalties as a goodwill gesture, aiming to gain the trust of the defaulting party. However, our study suggests that such gestures may not yield long-term

benefits. In conclusion, adherence to contractual terms is essential for defining rights and obligations and sustaining trust over time.

The findings of this study also highlight the significant roles that both contract compliance and transaction-specific investment play in enhancing trust. More importantly, they reveal that these two factors complement each other in fostering trust.

Similarly, when contracts are rigorously enforced, transaction-specific investment becomes more potent in building trust. In essence, transaction-specific investment serves as a binding force that promotes trust; by contrast, contract compliance acts as a deterrent against opportunistic behavior. The synergistic effect of these two forces, where transaction-specific investment pulls, and contract compliance pushes, leading to more effective trust-building.

Moreover, our study reveals the consequences of foreign ownership in a Chinese ERP-implementation context—revealing a weakening link between contract completeness and contract compliance as foreign ownership increases. This finding aligns with prior research suggesting that compliance with contracts in developing countries can be challenging [106]. As such, it underscores the importance of detailed contracts that clearly outline obligations and associated penalties in such settings. Specifically, when transaction-specific investment is high, contract compliance becomes more effective in nurturing trust.

However, when foreign investment is significant, the influence of contract completeness on contract compliance diminishes. This can be explained by the increased confidence of the contracting parties when foreign investment is involved [107]. Even if contract details are less precise, foreign investments tend to lead to contract enforcement. Furthermore, due to China's non-Western legal system, Chinese firms have legal advantages when seeking remedies against foreign partners within China [124-126]. Considering our findings regarding the moderating role of ownership, businesses can strategically tailor their contractual governance by adjusting the level of detail within contracts based on the degree of foreign ownership among the contracting parties.



## 7.2. Implications for Research and Theory

This study contributes significantly to our understanding of contractual and relational governance in several ways:

*First*, our research represents the inaugural investigation into contract compliance, a critical factor in the unique context of China. Unlike contract compliance in Western countries, China's social, institutional, cultural, and economic characteristics pose distinct challenges to contractual governance. Even meticulously detailed contracts can remain ineffective if not enforced. Our findings on contract compliance offer a profound insight into the intricate mechanisms underlying how detailed contracts influence ERP customer trust within the Chinese context.

*Second*, our study identifies two complementary mechanisms that elucidate how contract completeness influences trust within the Chinese ERP setting. Initially, there is a mediation process, where contract compliance with a detailed contract directly influences trust. Furthermore, we observe a synergistic relationship between contract compliance and transaction-specific investment. Specifically, when there is a greater investment in the relationship, contract compliance becomes a more potent factor in enhancing trust within the framework of a detailed contract.

*Third*, our research delineates the pivotal role of ownership in the bridge-effect of contract compliance between contract completeness and trust. We have discovered that ERP contract compliance holds greater significance for Chinese-owned companies in bridging the gap between contract completeness and trust compared to their foreign-owned counterparts. In essence, the influence of a detailed contract on contract compliance is more pronounced for Chinese-owned companies.

*Finally*, we contribute to the extensive body of signaling theory research by presenting a context-specific model that applies its principles to the realm of China's ERP contract compliance. Traditionally, ERP vendor relationships exhibit high information asymmetry. Signaling theory posits that asymmetric information can hinder collaboration and trust [68; 127]. To mitigate this, the signaler (ERP vendor) sends signals, and the receiver (ERP customer) decodes them, aiming to reduce information asymmetry [51]. In the ERP vendor–vendee relationship, the ERP customer acts as the principal, while the vendor acts as the

agent, each having different interests and access to asymmetric information favoring the vendor. The ERP customer entrusts the vendor with a critical aspect of its business function. Our study theorizes how ERP vendors can employ contracts and transaction-specific investment as signals of credibility, trustworthiness, and commitment, thus shaping ERP customer trust within the Chinese context.

Additionally, in line with signaling theory [50], beyond information signals, information indices (observable, fixed, and relatively unalterable attributes of the agent) may influence the principal's feedback. One such information index we explore is the ownership type of the ERP vendor, particularly the degree of foreign ownership (Chinese-owned, joint venture, or foreign-owned), revealing the contingent effects of ownership on trust dynamics.

### **7.3. Limitations and Directions for Future Research**

First, although this study exclusively examines the influence of contract completeness and contract compliance on trust, it's crucial to acknowledge that trust is just one facet of relational governance in vendor–vendee relationships [cf. 128]. To enrich our understanding, future research should explore other vital aspects such as information exchange [91; 129; 130], flexibility [91; 131], goal conflict or misalignment [132], solidarity [91], and conflict resolution [128]. Investigating how contract completeness and contract compliance affect these aspects of relational governance can shed light on their roles in fostering or hindering effective governance.

Additionally, prior technology-related research has emphasized the distinction between trust, distrust, and ambivalence [118; 133]. Understanding these nuanced dynamics is especially important in trust-based relationships, particularly in Chinese–Western business relationships [134]. Future studies should explore these dimensions to provide a more comprehensive view of relational governance.

*Second*, the geographical context of this study, conducted in China, necessitates caution when generalizing findings to other settings with distinct cultures and legal systems. It is essential to consider differences in business culture, foreign investment dynamics, and legal frameworks when applying these findings to other countries. Research has indicated that ERP implementations in China face unique relational challenges with implementation partners in terms of culture, language, and customizations [2; 4;

5; 32]. To address this, future research could extend the present study's findings through cross-cultural data collection, focusing on comparing Chinese and Western participants [cf. 39; 135]. Additionally, examining variations in legal systems and contract dispute resolution mechanisms could provide a more nuanced understanding of the context-specific factors at play.

*Third*, our data, being cross-sectional, primarily explains trust without delving into the downstream effects of trust in ongoing contractual relationships over time. Future research opportunities lie in combining cross-sectional data with objective panel data to serve as proxies for contract compliance and trust. Collecting follow-up or longitudinal data would enable the exploration of how contract performance and trust evolve over time. This becomes particularly intriguing because signaling theory suggests that contract performance creates a feedback loop that influences future signal generation and perceptions. Studying such feedback loops empirically, as depicted in **Figure 1**, presents a major challenge but promises valuable insights.

Moreover, our study relied on highly knowledgeable management-level employees as informants for each firm. Further research could involve multiple levels of respondents within the same firms. This multi-level perspective may provide a more comprehensive picture and allow for interrater reliability assessments, enhancing the findings' robustness. This is more challenging, as it requires matching employees to managers to firms. Such a study could also benefit from qualitative analysis and insights to comprehensively understand how different levels within organizations perceive and respond to contractual governance.

#### **7.4. Conclusion**

In the complex context of ERP systems, especially within the unique business and legal environment of mainland China, our study has played a pivotal role in understanding the dynamics of customer trust. Addressing gaps in the existing literature, our research, grounded in signaling theory, explores the impact of contract completeness, vendor compliance, transaction-specific investments, and vendor ownership type on trust-building in ERP vendor-vendee relationships. Our empirical analysis, based on data from 208 Chinese organizations, underscores the significant role of the vendor's ownership type, particularly foreign

ownership, in moderating the relationship between contract completeness, compliance, and the subsequent impact on trust.

Theoretically, our research makes a substantial contribution by offering a novel perspective on trust-building mechanisms within ERP systems, focusing on the Chinese context. Our grounding in signaling theory provides valuable insights into the dynamics of contract completeness, compliance, and ownership type. This not only enriches academic discourse but also sets a foundation for future cross-cultural research in the field. Practically, the insights garnered are invaluable for ERP vendors and customers, guiding them in navigating the complexities of ERP implementations in China. By understanding the interplay between these key factors, businesses can develop tailored strategies to enhance trust and achieve successful ERP system integrations.

In summary, our research serves as a critical steppingstone toward understanding the intricate world of contractual and relational governance in ERP systems. It opens new avenues for both scholars and practitioners to explore and understand how trust is cultivated and sustained in this complex ecosystem. This study not only contributes to the academic field but also has practical implications, aiding in the development of more prosperous and resilient business relationships in the ever-evolving ERP landscape.

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