

Influence of Prior Ties on Trust in Contract Enforcement in the Construction Industry: Moderating Role of the Shadow of the Future

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Abstract: This article explores the effect of prior ties on trust in contract enforcement after contractual breaches, which is underdeveloped in the existing literature, from a multifunctional perspective. In this research, both goodwill-based and competence-based trust have been distinguished to explore their mediating effects on the influence of prior ties on contract enforcement; two diverse functions of contracts, controlling and coordination, have been differentiated. This study also examined the moderating effects of the shadow of the future on these functions. Using data gathered from a paper-based survey of 195 Chinese general parties in the construction industry, we posit that prior ties between contracting parties will improve the level of both goodwill-based and competence-based trust between them, thus negatively influencing the severity of contract enforcement. Furthermore, the inhibiting effects of competence-based trust on the severity of coordination contract enforcement will be strengthened under the circumstances of a higher likelihood of continued cooperation. This study offers a deep and nuanced understanding of contract enforcement. DOI: [10.1061/\(ASCE\)ME.1943-5479.0000584](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000584). © 2017 American Society of Civil Engineers.

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Introduction

Contracts are well understood for their important role as a substitute for relational governance (Adler 2001; Ghoshal and Moran 1996; Gulati 1995) or as constituting relational governance completely (Liu et al. 2009; Luo 2002; Poppo and Zenger 2002; Ryall and Sampson 2009). However, contracts can never play their designed roles unless obligations are fulfilled by contracting parties. Because of a lack of awareness of obligation, insufficient resources, dishonest attempts to react to unforeseen circumstances, or purposed opportunism (Antia and Frazier 2001), contracting parties may breach contracts. Thus, violation happens no matter how well contracts are designed (Williamson 1996), especially in the construction industry, which has a high level of uncertainty (Winch 1989). However, contract breach enforcement is underdeveloped in the existing literature (Johnson and Sohi 2016).

Contract enforcement, which can be regarded as one part of the governance mechanism, should be aligned with transaction features in a discriminating way so that transaction costs can be reduced (Mooi and Gilliland 2013). In this study, severity is how governance mechanisms are differentiated, and prior tie is the

distinguished transaction feature. Contract enforcement, which is a response to a violation of contractual obligations, should be measured as a continuous variable in terms of severity rather than a binary variable (Antia and Frazier 2001). Drivers of contract enforcement have been identified in previous studies (Antia and Frazier 2001; Gilliland and Bello 2002; Mooi and Gilliland 2013). It is not clear, however, how prior ties and trust influence contract enforcement in a multifunctional perspective, in which contracts serve controlling/safeguarding and coordinating functions.

Embedded in construction projects conducted in China is the unique Chinese cultural phenomenon of *guanxi* (Qian et al. 2016), which can cause inefficiency and unpredictability in contract execution (Peng 2003). By referring to networks of informal relationships and exchanges of favors, *guanxi* represents how business is done throughout China and East Asia (Lovett et al. 1999). Different from relational exchange in most Western cultures, which is guided by legality and rules, Chinese *guanxi* is driven by morality and social norms. As a mixed-tie relationship, *guanxi* is instructed by reciprocal obligation and mutual assurance (Wang 2007). Because a prior tie is one of the important bases for *guanxi* (Tsui and Farh 1997), the exploration of the relationship between prior ties and contractual enforcement is important in China.

Nuanced studies that distinguish the different functions of contracts help to shed light on contract governance mechanisms and contract structure. Similarly, the authors propose that violations of different contract terms with diverse functions are influenced by prior ties and trust to varying degrees. Because of different resources of trust, which are the positive expectations of the other party and the perceived ability to fulfill them (Zhang et al. 2016) in the construction industry, this study distinguishes between goodwill-based and competence-based trust. This study explored the following research questions:

- RQ1: How do prior ties influence the severity of contract enforcement?
- RQ2: Do prior ties influence the severity of contract enforcement by impacting the level of trust between transaction parties?

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- RQ3: How does the shadow of the future moderate the relationship between trust and the severity of contract enforcement?

Great importance should be attached to the examination of the first research question because contract breaches are common in the construction industry. Thus, it is high time to explore contract enforcement that often leads to zero-sum outcomes (Krasa and Villamil 2000). Because not all transaction parties have prior ties, the second research question is necessary to understand contract enforcement in the absence of prior ties. Finally, the moderating effect explored in the third question can draw a boundary for these explanations.

To examine these research questions, the authors collected data in China. In total, 195 valid paper-based questionnaires were selected as our sample. Both mediation and moderation effects have been examined by a combination of structural equation modeling and regression analysis.

Generally, this study contributes to the existing literature in the following three ways: First, this study provides a deep and nuanced understanding of contract enforcement. To the best of the authors' knowledge, this study is the first to examine a continuum of enforcement severity from a multifunctional perspective. This article, with its distinction between goodwill-based and competence-based trust, also provides a subtler understanding of contract enforcement than previously achieved. Second, this study paints a detailed picture of how prior ties influence the severity of contract enforcement and whether the same outcomes can be achieved in the absence of prior ties. By precisely identifying the mechanism of how trust inhibits the negative side of transactions, this research provides a complementary view of how trust positively benefits cooperation. Third, the boundary conditions when these effects occur are clarified by examining moderating effects. Overall, this study addresses some of the deficiencies in previous research, thus reinforcing the theoretical and empirical foundation of the literature on contract enforcement.

Theoretical Background

Literature on Contract Breach Enforcement

Bounded rationality and the pursuit of self-interest are two core assumptions in transaction cost theory (Williamson 1996). Therefore, decisions about whether to breach a contract or not are dominated by considerations of costs and benefits (Guo and Jolly 2008). In addition to this, contract breach may also happen because of negligence, changes in environmental conditions (Bourassa et al. 2011), lack of awareness of the obligation, or insufficient resources to fulfill the obligation. Therefore, not all violations are cases of opportunism (Antia and Frazier 2001).

Johnson and Sohi (2016) classified four broad areas in the current literature on contracts: (1) contracts as governance mechanisms, (2) contract structure, (3) contract breach enforcement, and (4) contract renegotiation. The authors of the current article conducted a literature review of contracts under this framework. In the first two areas, researchers pay attention to how contracts govern transactions and how contracts are formed. They generally focus on ex ante conditions and have not investigated what parties' reactions to contract violations might be. As for contract enforcement, it can be considered in two ways: the means ensuring that contract terms can be complied with, such as setting preconditions, (e.g., sound institutional environments, politics, and law) for efficient exchanges (Aboal et al. 2014; Guo and Jolly 2008; Radygin and Entov 2003; Weber 2015), and the corrective actions that are aimed at remedying the situation after contract breach (Antia et al. 2006; Antia and

Frazier 2001; Mooi and Gilliland 2013; Stoyanova-Sieber 2009). In the literature on corrective actions, on which this article focuses, researchers have discussed the antecedents of contract enforcement (Antia et al. 2006; Gilliland and Bello 2002; Jin et al. 2013), the different types of contract enforcement (Noorderhaven 1992; Stoyanova-Sieber 2009; Suzor 2012; Weber 2015), and the consequences of contract enforcement (Mooi and Gilliland 2013). However, research on the role of contracts in enforcement is still limited (Mooi and Gilliland 2013), especially studies from a multifunctional perspective. Recently, Harmon et al. (2015) explored drivers of contract enforcement at the individual level by adopting the controlling and coordination functions as mutually exclusive. However, the current authors contend that a contract could both safeguard a transaction and coordinate it at the same time.

Most literature related to contract enforcement treated the contract as a whole and analyzed the enforcement decision afterward (Ellingsen and Kristiansen 2011; Guo and Jolly 2008). Only a few studies broke contracts down into different provisions. Antia and Frazier (2001) identified four provisions in franchise contracts that are commonly violated. With the belief that different components of contracts generate diverse likelihoods of enforcement, Mooi and Gilliland (2013) described four components in contracts. Their study found that these different components of contracts have various influences on enforcement. In addition, nuanced studies that distinguish different functions of contracts help to solve the puzzles in both contract governance and contract structure (Malhotra 2009, Malhotra and Lumineau 2011; Weber and Mayer 2011; Weber et al. 2011). Thus, it is reasonable to assume that they would aid in understanding contract enforcement because enforcement is also an important governance function (Williamson 1996).

With the assistance of computers, Parkhe (1993) developed a checklist of eight provisions to safeguard transactions. Afterward, scholars classified these eight provisions into different categories from a multifunctional perspective. The first three provisions contribute to the coordination function of contracts, whereas the last five provisions serve to safeguard the transaction (Reuer and Ariño 2007). Construction industry contracts differ from those in other industries because construction projects are among the most complex of all production undertakings (Winch 1989). Based on the study of Song et al. (2006), Zhang et al. (2016) generated four specific contract controlling provisions and six coordination provisions.

As mentioned previously, the definition of enforcement in this study is a corrective action aimed at remedying problems, referring to the severity of one party's response to another party's violation of a contract obligation (Antia and Frazier 2001). After the violation of one party, the other party should choose distinct contract enforcement to make up the losses. Researchers have identified these contract enforcements as including arbitration, litigation, and termination (Wang 2009). However, to the best of our knowledge, no attempt has been made to understand the severity of contract enforcement after violation in the construction industry, which is frequent because of the subgoal-seeking behavior of different stakeholders in construction projects (Walker 2015).

Trust

Generally speaking, the literature on trust is covered by a broad spread of disciplines, including psychology, sociology, economics, and organizational science (Guo et al. 2013). The definition of trust varies across these disciplines. Researchers in each discipline attach importance to different facets and levels of trust. Economists define trust as *implicit contracting*, in which one party in a transaction can make sure that the other party in a transaction does what is promised, whereas sociologists treat trust as a set of expectations shared

by all those involved in a transaction (Zucker 1986). After reviewing different definitions from various disciplines, Rousseau et al. (1998) assert, "Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions of behavior of another." There are two important parts to this conceptualization of trust: expectancy and behavior (Singh and Sirdeshmukh 2000). Thus, this article borrows from Nooteboom (1996) and distinguishes goodwill-based trust and competence-based trust as referring to the belief about the other party's intention to perform in a trustworthy manner and the ability to complete tasks as promised as separate issues.

It is generally agreed that prior ties accumulate trust between exchange partners and facilitate governance and coordination (Valdés-Llaneza and García-Canal 2015). According to Cook and Emerson (1978), the term *prior ties* refers to the history of a particular relationship. Studies related to prior ties are generally based on social exchange theory, which complements transaction cost theory. Besides trust, learning has also been studied, and these two elements are proposed to be positively influenced by successful prior ties between the same exchange partners (Chen and Bharadwaj 2009).

However, the influence of prior ties via trust and learning on contract governance is contradictory. Some have argued that prior ties generate trust and thus diminish the need to craft highly specific contracts (Gulati 1995), whereas others have demonstrated that prior ties help exchange parties learn about the other party's business process and culture and improve their ability to foresee contingency, thus increasing the specification of contracts (Mayer and Argyres 2004; Poppo and Zenger 2002). Hence, more studies are needed to understand how prior ties and trust influence contract governance and enforcement.

Hypothesis Development

Prior Ties and Trust

Both social exchange theory and transaction cost theory predict that trust could be built over time through experience with known parties, although the logic and the dimensions of trust that are analyzed in these theories differ (Lioukas and Reuer 2015). According to social exchange theory, goodwill-based trust accumulates with repeated exchange experiences. Prior ties help to determine if and to what extent the other party can be trusted (Robinson 1996). The more frequently parties transact, the less likely they are to lose control of the subsequent transaction because of the built shared norms of equity and reciprocity, and thus opportunism can be avoided under uncertain circumstances (Ring and van de Ven 1992). In addition, information a party receives from another party with which it shares a history is regarded as more reliable than that from parties without prior ties (Normann 1971). The behaviors of the other party can be predicted based on trust built over time through repeated transactions (Gulati 1995), for these parties would not behave in a self-interested manner in view of friendship and emotional attachments (McAllister 1995; Robson et al. 2008). These studies demonstrated that prior ties enhance goodwill-based trust. Compared with the detailed analysis of goodwill-based trust in social exchange theory, competence-based trust that reflects confidence in the other party's ability to accomplish certain tasks has not been well explored (Connelly et al. 2012; Ring and van de Ven 1992).

Transaction cost theory complements this dimension. Studies that integrated learning and knowledge-based perspectives with transaction cost theory demonstrated that prior ties help to understand a partner's ability to accomplish tasks (Lioukas and Reuer 2015; Mayer and Argyres 2004). Repeated transactions help exchange parties to

understand each other's reputation and competence to achieve the desired goals (Laan et al. 2012; Valdés-Llaneza and García-Canal 2015), and capabilities, skills, culture, and management systems are also understood from prior interactions (Zollo et al. 2002). In addition to competence-based trust, the literature based on transaction cost theory, learning, and knowledge-based perspectives has also posited that goodwill-based trust can be built up through repeated transactions. The partner's incentive can be comprehended (Mayer and Argyres 2004), and the goodwill-based trust of the other party through an accumulation of cooperation can help to reduce transaction costs (Friedman 1991; Ring and van de Ven 1994).

Projects, which differ between organizations, are characterized by finite time spans, and this may complicate the development of trust and thus lead to the underdevelopment of issues related to how prior ties influence trust in a project setting (Buvik and Rolfsen 2015; Laan et al. 2012). In a longitudinal study, Webber (2008) explored the evolution of multidimensional trust and showed that prior ties help to develop trust. Construction, as a prime example of a project-based industry, may help to clarify the mechanism of how prior ties influence trust in a project setting. In a qualitative study at the construction team level, Buvik and Rolfsen (2015) concluded that the influence of prior ties on trust development in the project team is significant both in the early establishment and development stages; built beliefs and norms can facilitate their feelings of unity, and open communication with clear information sharing and problem-solving mechanisms also improve their competence to collaborate. Thus, the authors developed the following hypotheses:

- H1a. Prior ties are positively associated with goodwill-based trust.
- H1b. Prior ties are positively associated with competence-based trust.

Trust and Contract Enforcement

Contract literature based on transaction cost theory emphasizes the controlling/safeguarding function of the contract to protect investments and property rights and to diminish moral hazards in the transactions. These controlling provisions are designed to improve incentives to prevent the occurrence of opportunism (Eckhard and Mellewigt 2006). Thus, if one party breaches the controlling provisions, the other party in the transaction may treat it as opportunistic behavior. Goodwill-based trust, which refers to the belief in the other party's intention to perform in a trustworthy manner (Robinson 1996), creates norms of equity and reciprocity between transaction parties (Ring and van de Ven 1992), and this could reduce one party's belief in the other party's incentive to be opportunistic. Because of the friendship and emotional attachments in this dimension of trust (McAllister 1995; Robson et al. 2008), one party may choose to regard the information offered by the other party as reliable (Normann 1971) and thus regard any violation of a contract as unintentional. In other words, the likelihood of opportunism may not decline, but the other party's perception of it could be diminished in the presence of goodwill-based trust.

In addition to the controlling function, which deals with the relational risk of a transaction, contracts also have a coordination function to mitigate the performance risk present in all transactions (Eckhard and Mellewigt 2006). Expected outcomes may not be achieved because of high complexity, uncertainty, or lack of competence to confront challenges. Competence-based trust, which derives from the belief in the other party's ability to complete tasks as promised (Nooteboom 1996), can not only facilitate the exchange of information but also improve satisfaction with the working relationship (Guo et al. 2013; Pinto et al. 2009). In addition, competence-based trust increases the likelihood of continued collaboration after a conflict has arisen (Malhotra and Lumineau

2011). After a breach of coordination provision, a transaction party with a high level of confidence in the other party's ability to complete tasks might still trust the other party and take cooperative action, thus mitigating the severity of contract enforcement. Hence, the authors developed the following hypotheses:

- H2a. Goodwill-based trust is negatively associated with severe controlling contract enforcement.
- H2b. Competence-based trust is negatively associated with severe coordination contract enforcement.

Prior Ties and Controlling Contract Enforcement

The authors expect that prior ties, by improving the level of goodwill-based trust, should diminish the severity of contract enforcement after a breach of controlling provision. Chinese transaction parties with prior ties are embedded in *guanxi*-net. Because enforcement is treated as noncooperative and results in a zero-sum outcome (Krasa and Villamil 2000), Chinese trading parties with prior ties might avoid severe contract enforcement, which might destroy the existing *guanxi*-net. Based on an empirical study in China, Luo (2002) found that prior ties could nurture cooperation and mitigate opportunism more than complete contracts could. In addition, the findings of Poppo et al. (2008) suggested that prior ties could help to generate trust in an indirect way; prior ties help transaction parties to learn each other's ability to perform satisfactorily, and thus equity and justice can be perceived. Goodwill-based trust, which derives from one party's belief in the other party's intention to perform in a trustworthy manner, would generate cooperation and decrease the perception of opportunism (Lui and Ngo 2004). The authors propose that prior ties would reduce the severity of contract enforcement. Thus, the authors developed the following hypotheses:

- H3a. Prior ties are negatively associated with severe controlling contract enforcement.
- H3b. Goodwill-based trust mitigates the inhibiting effect of prior ties on the severity of controlling contract enforcement.

Prior Ties and Coordination Contract Enforcement

Prior ties, by increasing competence-based trust, will decrease the severity of contract enforcement after contractual breaches. Prior ties can help transaction parties to be clear about each other's ability. Experience can clarify the procedure and responsibilities of each party. With the belief of the other party's ability to complete the assigned works, a transaction party would pay more attention to the evaluation of the final work rather than the procedure (Connelly et al. 2015; Das and Teng 1996). Compared with controlling provisions, which focus on negative facets of a transaction and their subsequent enforcement measures, coordination provisions emphasize the positive facets of a transaction (Eckhard and Mellewig 2006). Thus, even if one party breaches coordination provision, which deals with the performance risk of a transaction, the other party, with a high level of competence-based trust accumulated from prior ties, would tolerate the violation and evaluate the transaction in terms of the final project. Hence, the authors developed the following hypotheses:

- H4a: Prior ties are negatively associated with severe coordination contract enforcement.
- H4b: Competence-based trust mediates the inhibiting effect of prior ties on the severity of coordination contract enforcement.

Moderating Role of the Shadow of the Future

In the construction industry, continued collaboration exists in both relationships between owner and contractor and those between

contractor and subcontractor, especially in the Chinese unique cultural background of *guanxi*. The likelihood of continued collaboration may enhance the effect of trust on inhibiting the severity of contract enforcement. Actions can be affected by the expectations of reciprocity and mutual cooperation. Such a situation is treated as a repeated game in game theory, where benefits are expected in the future. However, the working relationship might be ruined, and the likelihood of continued collaboration would decrease after a severe contract enforcement, which is often treated as noncooperative behavior (Krasa and Villamil 2000). Furthermore, the shadow of the future can also improve the level of trust between the transaction parties (Poppo et al. 2008); if one party trusts in the other party, that party is more likely to display cooperative behavior for the expected benefits under a high likelihood of continued cooperation. As a result, parties are more likely to tolerate a violation of the contract, and thus the severity of contract enforcement can be mitigated. Hence, the authors developed the following hypotheses:

- H5a: The negative influence of goodwill-based trust on the severity of controlling contract enforcement will be strengthened when the partners have a higher likelihood of continued cooperation.
- H5b: The negative influence of competence-based trust on the severity of coordination contract enforcement will be strengthened when partners have a higher likelihood of continued cooperation.

Research Methodology

Sampling and Data-Collection Procedures

This research used a questionnaire survey to test the proposed hypotheses, and the data were collected from Chinese project professionals who have experienced contract violation in their construction projects. All of them were asked to complete the questionnaires based on their most impressive experience of contract violation. The questionnaire started with basic information about respondents, followed by items intended to measure prior ties, the shadow of the future, contract enforcement, and control variables. Core variables were measured on a 7-point Likert scale.

The whole survey lasted 2 months. The authors distributed 400 paper-based questionnaires during construction project training programs, and the respondents came from different companies with diverse backgrounds. Finally, the authors collected 265 questionnaires, for a response rate of 66.25%.

The authors supplemented for missing data based on an expectation-maximization (EM) algorithm and deleted 63 outliers. Considering the lack of experience in making decisions, we also deleted 11 nonmanager responses. Finally, there were 195 valid questionnaires selected as a sample, representing a valid response rate of 48.75%, which compared favorably with the response rates (43% and 59%, respectively) in most previous studies in contract enforcement (Antia and Frazier 2001; Mooi and Gilliland 2013). Considering that the data were collected during training programs, the higher rate is understandable.

Structural Equation Modeling

Structural equation modeling (SEM) is a multivariate statistical framework that incorporates regression, factor analysis, and path analysis, which is used to model complex relationships between directly and indirectly observed (latent) variables. Compared with multiple regression analysis, SEM makes it more convenient to

conduct regression analysis of a model with many dependent variables and perform better in reducing measurement error. More and more studies in construction research use SEM (Sarkar et al. 1998; Wong and Cheung 2005; Yang et al. 2012), which reveals the applicability of SEM in this field. In addition, many statistical programs can be used to conduct SEM; the authors employed *AMOS 24* in this research.

Measurement Development

With reference to previous studies, the authors developed a multiple-item scale of variables. Because the related literature is all in English, we made an effort to translate the questionnaire comprehensively and critically. Adopted from the four steps of scrupulous translation (Sharifirad 2011), forward translation, assessment, backward translation, and assessment, the authors first translated the questionnaire into Chinese. And then two Chinese-speaking researchers reviewed this version. Subsequently, modifications were made according to their suggestions. The items were also refined to suit the context of contractual breaches. Based on the seminal study (Antia and Frazier 2001) in contract enforcement literature, all the items in this research were measured with a 7-point Likert scale, which ranged from 1 (strongly disagree) to 7 (strongly agree).

Dependent Variable: Severity of Contract Enforcement

In the studies carried out before that by Antia and Frazier (2001), contract enforcement was measured by a binary variable, which is classified as enforcement/not enforcement (Bergen et al. 1998; Dutta et al. 1994). Antia and Frazier (2001) were the first to measure contract enforcement as a continuum in terms of severity. Antia et al. (2006) also broadened the conceptualization of enforcement into severity, certainty, and speed. However, it is severity that is fundamental to the definition of contract enforcement (Gibbs 1975). Considering the research methodology in the current study, a questionnaire based on empirical experience rather than the scenario studies where experimenters are manipulated to make decisions, the authors adopted the measuring method from Antia and Frazier (2001). Although four areas of provisions were selected in the study of Antia and Frazier (2001), they dealt with franchise contracts rather than construction project contracts. To adjust the questionnaire for the construction industry, the authors used as reference the studies of Zhang et al. (2016) and Quanji et al. (2017) to develop items to measure the severity of contract enforcement in the construction industry from a multifunctional perspective. To match the context of contractual breaches, the authors made some modifications based on the study of Mooi and Gilliland (2013). The following three items were omitted from the current study because these provisions could not be violated: *the contract specifies provisions about penalty strictly*, *the contract defines procedures of dispute resolution specifically*, and *the contract defines provisions of variations and adjustment specifically*. Finally, as shown in Table 7 in the Appendix, four items were used to measure the severity of controlling contract enforcement, and five items were used to measure the severity of coordination contract enforcement.

Independent Variable: Prior Ties

The authors attempted to measure prior ties both as a continuous and a binary variable based on the study of Reuer and Ariño (2007). However, respondents found it difficult to recall precise times of collaboration in the construction industry. Thus, the authors

constructed the prior ties as a binary variable to indicate the presence or absence of prior alliance and supplemented this with reflective questions to measure how often respondents had prior ties before this project. *Very often*, *often*, and *seldom* were recorded with scores of 3, 2, and 1, respectively.

Mediating Variable: Trust

Based on the studies of Jiang et al. (2013) and Zhang et al. (2016), this study used the existing items to measure goodwill-based trust and competence-based trust. Both of these studies were completed in the Chinese context; thus, the applicability of items was assured. As shown in Table 7 in the Appendix, five items were used for measurement of goodwill-based trust and four items were used for that of competence-based trust.

Moderating Variable: Shadow of the Future

Similar to the study of Parkhe (1993), this study used a 7-point Likert scale to measure the perceived likelihood of continued collaboration by the four items shown in Table 7 in the Appendix.

Control Variables

With the use of a ground theory approach, Johnson and Sohi (2016) identified four primary categories of pertinent factors affecting the decision of contract enforcement: (1) external environment consideration, (2) interfirm considerations, (3) internal consideration, and (4) interpersonal considerations. Based on his identification, this study controlled five variables: *transaction type*, *relationship type*, *difficulty of verifying contract violation*, *cost of resolution*, and *feasibility of legal enforcement*. *Feasibility of legal enforcement*, an external environment consideration, was controlled because legal institutions are proposed to influence enforcement decisions (Zhou and Poppo 2010). Four types of transactions were analyzed as an interfirm consideration: owner to contractor, contractor to owner, contractor to subcontractor, and subcontractor to contractor. The dominant role in these contracts may differ across these diverse transaction types, thus influencing enforcement decisions (Wu et al. 2017). *Relationship types*, including exchange party within the same company, independent Chinese company, and independent foreign company, reflect different social interactions (Zhou and Cai 2003) between exchange parties, thus impacting on the severity of enforcement. This variable was controlled as an interfirm consideration. Considering that many large-scale construction projects in China are conducted by a state-owned enterprise, this control variable, which could reflect hierarchical structure in Chinese society, may influence social harmony and stability. In terms of internal considerations, both *difficulty of verifying contract violation* and *cost of the resolution* were measured by the 7-point Likert scale based on the study of Antia and Frazier (2001). Interpersonal considerations were ignored in this study because decisions of contractual enforcement in construction projects generally involve plenty of money and are basically made by a group of members.

Results

Measurement Model Fit

To explore the internal consistency and reliability of the scales, the Cronbach's alpha values of the multiple-item scales were calculated. As shown in Table 7 in the Appendix, the Cronbach's alpha value of each scale ranged from 0.840 to 0.940, so all were above

the 0.7 benchmark, indicating that the level of consistency and reliability was sufficient in this study (Nunnally and Bernstein 1994).

Confirmatory factor analysis (CFA) with structural equation modeling (SEM) was employed with AMOS 24 to explore the convergent validity and discriminant validity. Before using CFA with SEM, the sample size must be considered (Schreiber et al. 2006). The sample size in the current study was 195, close to the benchmark of 200 (Barrett 2007). The case-to-variables ratio was 8.86:1, more than the benchmark of 5:1 (Gorsuch 1983), which ensures the appropriateness of using CFA with SEM. Construct reliability (CR) and average variance extracted (AVE) were calculated to explore the convergent validity. As shown in Table 7 in the Appendix, the CR values for the constructs were all above the 0.7 benchmark, and the AVE values for the constructs were all above the 0.5 benchmark, which indicates that the measurements of those constructs have good convergent validity. Each square root of the AVE value was compared with the off-diagonal correlation coefficient by the authors to assess the discriminant validity. As shown in Table 1, the square root value of the AVE of each construct was higher than the off-diagonal correlation coefficient. Thus, discriminant validity was confirmed.

To reduce the common method variance (CMV), which is an issue when using surveys (Podsakoff and Organ 1986), the authors followed the advice of Podsakoff et al. (2003) and informed all of the respondents that this questionnaire would be used only for academic purposes, and all the responses would be confidential. In addition, an exploratory factor analysis (EFA) with Harman's 1-factor method was conducted to test for this problem. The Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity was conducted, and the KMO value was 0.847 ($p < 0.001$), which ensured the appropriateness of using EFA. The result of EFA showed that the cumulative contribution rate of the five latent variables was 71.558%, and each of them contributed less than 40%. Fig. 1 shows the scree plot of the factor analysis for all of the items. Thus, neither a single factor emerged, nor could one factor explain most of the variation, which indicates that CMV was not a significant disturbance in this study.

Structural Model Fit

The results showed the following for the structural model fit: $\chi^2/\text{DOF} = 2.315$, goodness-of-fit index (GFI) = 0.844, and root-mean square error of approximation (RMSEA) = 0.082, which are the indicators of the overall fit; comparative fit index (CFI) = 0.905, incremental fit index (IFI) = 0.906, Tucker-Lewis index (TLI) = 0.888, and normed fit index (NFI) = 0.845, which are indicators of the comparative fit; adjusted goodness-of-fit index (AGFI) = 0.797, which is the indicator of the model parsimony; and expected cross-validation index (ECVI) = 2.196, which is the indicator of the predictive fit.

Table 1. Descriptive Statistics and Pearson Correlation Matrix

Variable	Mean	SD	1	2	3	4	5
1. Severity of controlling contract enforcement	4.639	1.489	0.781				
2. Severity of coordination contract enforcement	4.642	1.299	0.407	0.779			
3. Goodwill-based trust	3.583	1.233	-0.584	-0.125	0.788		
4. Competence-based trust	3.595	1.254	-0.059	-0.501	0.083	0.794	
5. Shadow of the future	5.306	1.559	-0.213	-0.077	0.345	0.212	0.918

Note: The bold numbers in the diagonal row are square roots of AVE. SD = standard deviation.

Hypotheses Analysis

The authors first conducted a correlation analysis to test the hypotheses. Correlation analysis was first employed to explore whether these variables relate to each other. Their correlations were assessed twice, with prior ties as a binary variable and a numerical variable in the presence of trust. As shown in Table 2, the correlation coefficients of this model were all less than 0.6, satisfying the requirement of hierarchical regression analysis (Kerlinger and Pedhazur 1974). The results in the model with the binary variable show that prior ties were found to be positively related to goodwill-based trust and competence-based trust and negatively related to the severity of controlling enforcement and coordination enforcement, which supports H1a, H1b, H3a, and H4a. The results in the model with a numerical variable show that prior ties were found to be positively related to goodwill-based trust and negatively related to the severity of controlling enforcement. Thus, further analysis was necessary.

Linear regression was conducted with SPSS 23.0 after correlation analysis. As shown in Model 2 in Table 3, prior ties were found to be significantly negatively related to the severity of controlling enforcement ($\beta = -0.226$, $p < 0.01$); thus, H3a is supported. As shown in Model 5 in Table 3, prior ties were found to be negatively associated with the severity of coordination enforcement, with significance ($\beta = -0.210$, $p < 0.01$), which supports H4a. As shown in Models 8 and 10 in Table 3, both goodwill-based trust and competence-based trust were found to be positively influenced by prior ties, with significance ($\beta = 0.548$, $p < 0.001$; $\beta = 0.526$, $p < 0.001$), which supports H1a and H1b.

When there was prior cooperation, the authors also conducted linear regression under the numerical measurement of prior ties. As shown in Table 4, prior ties were found to significantly mitigate the severity of controlling enforcement ($\beta = -0.211$, $p < 0.05$) and improve goodwill-based trust ($\beta = 0.338$, $p < 0.01$), thus further supporting H3a and H1a.

A combination of SEM and hierarchical regression analysis was used because the model in this research contains both a mediating and moderating test. To explore the mediating effect of two dimensions of trust, bootstrapping in AMOS was used in this research. The relationship between the two dimensions of trust and severity of contract enforcement was detected before the exploration of the mediation effect. As shown in Table 3, goodwill-based trust significantly reduced the severity of controlling contract enforcement ($\beta = -0.562$, $p < 0.001$), and competence-based trust significantly mitigated the severity of coordination enforcement ($\beta = -0.457$, $p < 0.001$), which supports H2a and H2b. Thus, the preconditions of mediation effect exploration were satisfied.

The SEM model is illustrated in Fig. 2. The results are shown in Table 5. As noted in Table 5, GOO, COM, CON, COO, and PRI represent goodwill-based trust, competence-based trust, the severity of controlling contract enforcement, the severity of coordinating contract enforcement, and prior ties separately. The estimated values of $\text{GOO} \leftarrow \text{PRI}$, $\text{CON} \leftarrow \text{GOO}$, and $\text{CON} \leftarrow \text{PRI}$ were found to be, respectively, 0.656 ($p < 0.01$), -0.288 ($p < 0.05$), and -0.709

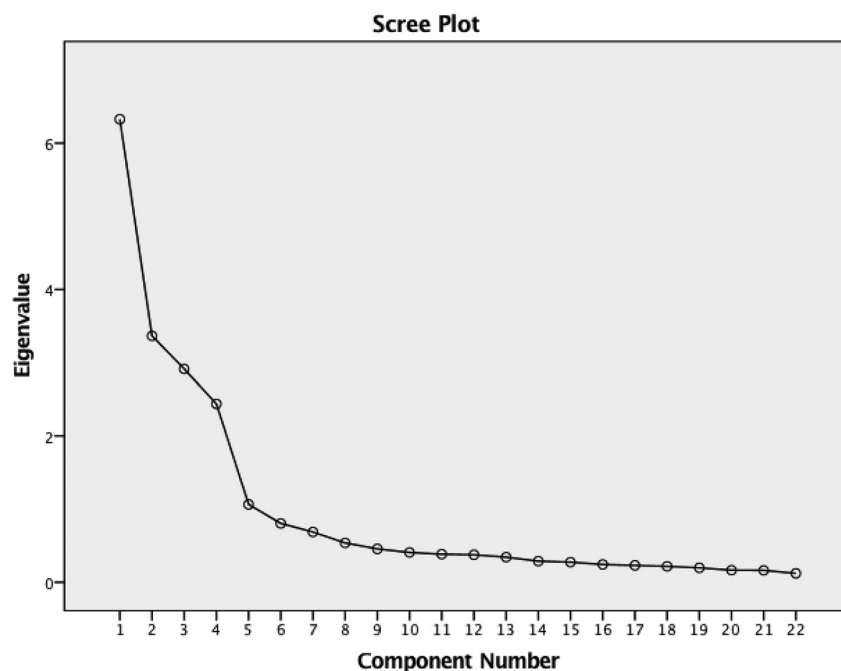


Fig. 1. Scree plot

Table 2. Results of Correlation Analysis

Parameter	Prior tie	
	Binary variable	Strength of prior tie (when prior tie exists)
Goodwill-based trust	0.581**	0.373**
Competence-based trust	0.540**	-0.109
Severity of controlling enforcement	-0.292**	-0.283**
Severity of coordination enforcement	-0.259**	-0.166

Note: $N = 195$. ** indicates a significance level of $p < 0.05$.

($p < 0.01$), which led to the conclusion that the effect of prior ties on the severity of controlling contract enforcement is partially mediated by the level of goodwill-based trust. The estimated values of $COM < -PRI$, $COO < -COM$, and $COO < -PRI$ were found to be, respectively, 0.640 ($p < 0.01$), -0.621 ($p < 0.01$), and -0.272 (not significant). That is, the inclusion of competence-based trust in the model lead to prior ties having no significant effect on the severity of coordination enforcement, which indicates that the effect of prior ties on the severity of coordination contract enforcement was fully mediated by the level of competence-based trust. These results support H3b and H4b. The mediating result is illustrated in Fig. 3.

In further analysis, the authors considered the consequence in the presence of prior ties. As shown in Table 6, the estimated values of $GOO < -PRI$, $CON < -GOO$, and $CON < -PRI$ were found to be, respectively, 0.650 ($p < 0.01$), -0.552 ($p < 0.01$), and -0.275 (not significant). The empirical results lead to the conclusion that the influence of prior ties on the severity of controlling contract enforcement was mediated by the level of goodwill-based trust, which further supports H3b.

To explore the moderating effect of the shadow of the future, this research applied hierarchical multiple regression with SPSS 23.0. The results show that the interaction of the shadow of the

future with goodwill-based trust ($p = 0.210$) was insignificant, which does not support H5a. The interaction between competence-based trust and the shadow of the future ($\beta = 0.278$, $p < 0.01$) indicates that a higher likelihood of continued cooperation will strengthen the negative relationship between competence-based trust and the severity of coordination contract enforcement. Thus, H5b is supported by the results.

Simple slope tests were conducted to get more insight into the interaction effect of prior ties and trust. Following the procedure of Toothaker (1994), the authors split the shadow of the future into two groups: a low (1 standard deviation below the mean) group and a high (1 standard deviation above the mean) group. The effect of prior ties on the severity of coordination contract enforcement was estimated for the low and high groups. Fig. 4 indicates that when the likelihood of continued cooperation was high, prior ties had a stronger negative impact on the severity of coordination contract enforcement ($\beta = -0.450$, $p < 0.001$) than when it was low ($\beta = -0.321$, $p < 0.01$).

Discussion

Consistent with previous studies (Buvik and Rolfen 2015; Gulati 1995), our results reinforce the view that prior ties could promote trust between transaction parties. The confirmations of H1a and H1b contend that prior ties could improve goodwill-based trust and competence-based trust separately. The main reason might be that prior ties, by helping project members to understand each other's motives (Buvik and Rolfen 2015), could predict when self-interested behavior may occur (Lioukas and Reuer 2015) and establish expectations of each other's behavior (Maurer 2010). This confirmed relationship could explain why owners/contractors prefer to cooperate with the original contractors/subcontractors in construction projects, which often involve huge investments and high levels of uncertainty (Winch 1989). In addition, the coefficients between prior ties and trust under the circumstances of the binary variable and the numerical variable were found to be 0.548, 0.526, and 0.338, -0.180 separately. This might illustrate that the marginal

Table 3. Results of Empirical Model (Prior Tie as a Binary Variable)

Variable	SoCon Model 1	SoCon Model 2	SoCoo Model 3	SoCoo Model 4	SoCoo Model 5	Goodwill Model 6	Goodwill Model 7	Goodwill Model 8	Competence Model 9	Competence Model 10
Prior tie		-0.226**			-0.210**			0.548***		0.526***
Goodwill-based trust			-0.562***			-0.087				
Competence-based trust			0.019			-0.457***				
Relationship type	-0.132	-0.070	-0.052	-0.236**	-0.179*	-0.115	0.149	0.000	0.236***	0.093
Difficulty of verifying violation	-0.142	-0.112	0.019	0.053	0.081	0.090	0.287***	0.214**	0.025	-0.044
Cost of resolution	0.116	0.114	0.016	0.022	0.020	0.016	-0.177*	-0.171**	0.020	0.026
Feasibility of legal enforcement	0.091	0.067	0.062	0.101	0.078	0.079	-0.053	0.007	-0.038	0.020
Owner to contractor	0.090	0.065	0.056	0.143	0.119	0.083	-0.066	-0.005	-0.118	-0.060
Contractor to subcontractor	0.097	0.087	0.098	0.132	0.123	0.067	-0.002	0.020	-0.140	-0.119
Subcontractor to contractor	-0.096	-0.090	-0.057	0.101	0.106	0.069	0.066	0.052	-0.081	-0.094
R^2	0.098	0.143	0.371	0.078	0.117	0.283	0.133	0.397	0.064	0.307
ΔR^2	0.064	0.105	0.340	0.043	0.078	0.248	0.100	0.371	0.029	0.277
F	2.875	3.845	12.050	2.241	3.051	8.059	4.068	15.253	1.812	10.255

Note: $N = 195$. SoCon = severity of controlling contract enforcement; SoCoo = severity of coordination contract enforcement. *, **, and *** indicate a significance level of $p < 0.1$, $p < 0.05$, and $p < 0.01$, respectively.

Table 4. Results of Empirical Model (Prior Tie as a Numerical Variable in Presence of Prior Tie)

Variable	SoCon Model 1	SoCon Model 2	SoCoo Model 3	SoCoo Model 4	Goodwill Model 5	Goodwill Model 6	Competence Model 7	Competence Model 8
Prior tie		-0.211*		-0.077		0.338**		-0.180
Relationship type	-0.176	-0.116	-0.267*	-0.246	0.148	0.051	-0.016	0.035
Difficulty of verifying violation	-0.129	-0.094	0.011	0.023	0.281*	0.225*	0.089	0.119
Cost of resolution	0.222*	0.203	0.098	0.091	-0.211	-0.182	-0.129	-0.144
Feasibility of legal enforcement	0.088	0.068	0.208*	0.201	0.127	0.159	-0.058	-0.075
Owner to contractor	0.012	-0.012	0.114	0.031	0.093	0.100	-0.174	-0.166
Contractor to subcontractor	0.240*	-0.051	0.198	-0.160	-0.066	0.025	-0.116	0.009
Subcontractor to contractor	0.040	-0.202*	0.160	0.120	-0.007	-0.031	-0.019	-0.124
R^2	0.139	0.177	0.123	0.128	0.165	0.262	0.063	0.090
ΔR^2	0.072	0.103	0.054	0.049	0.100	0.195	-0.010	0.009
F	2.068	2.386	1.798	1.628	2.535	3.945	0.861	1.105

Note: $N = 99$. SoCon = severity of controlling contract enforcement; SoCoo = severity of coordination contract enforcement. * and ** indicate a significance level of $p < 0.1$ and $p < 0.05$, respectively.

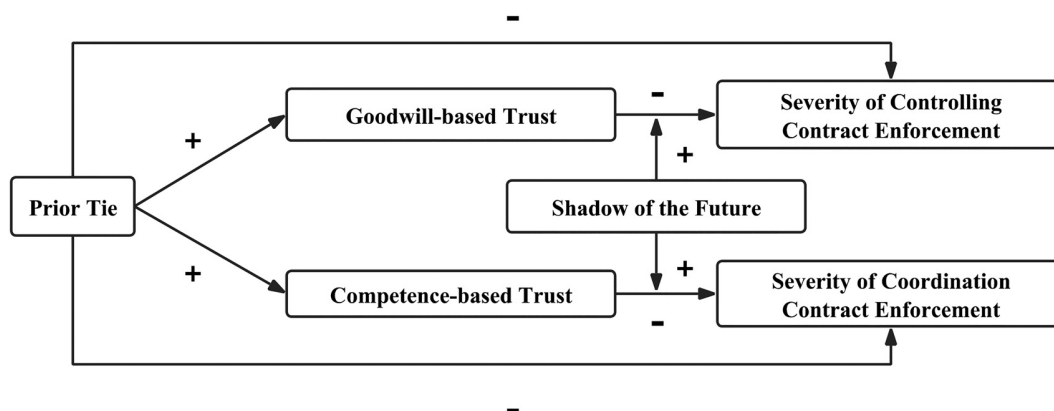


Fig. 2. Theoretical framework

effect of prior ties on trust reduces as cooperation between parties continues because the former two coefficients are both bigger than the latter two.

Previous studies have demonstrated that trust between transaction parties can generate cooperation (Ring and van de Ven 1992; Zhang et al. 2009), which focuses on the positive side of a transaction. However, with the empirical evidence supporting H2a and H2b, this study focused on how trust inhibits the noncooperative side of a transaction. Consistent with the study of Zhang et al. (2016), trust is relied on by transaction parties to address disputes. After a breach of contract, transaction parties try to avoid severe contract enforcement, which often has a zero-sum outcome (Krasa and Villamil 2000), to protect the existing relationship. The empirical results of H3 and H4 explain how prior ties reduce the severity of contract enforcement via two dimensions of trust, which complements the antecedents of the severity of contract enforcement in the study of Antia and Frazier (2001). Prior ties, by improving goodwill-based trust and competence-based trust, reduce the severity of both control and coordination contract enforcement. *Guanxi*, unique to Chinese culture, might be helpful in explaining this phenomenon. Parties with high *guanxi* quality have highly mutual and reciprocal dependence, so both trust can be built and contractual enforcement, a sign of losing *mianzi* (face), can be avoided (Yang 1995). Because *guanxi* and *guanxi* practices are believed to generate from incomplete legal protection, the institutional environment in China might be a basic reason. Considering the inadequate law enforcement in China (Cao 2014), legal sanctions might not be enforced even after a judgment has been announced. Thus, rather than taking the risk

of ruining the established *guanxi*, transaction parties would try to find other ways to handle the other party's breach of contract.

The confirmation of H5b demonstrates that the shadow of the future would strengthen the negative influence of competence-based trust on the severity of coordination contract enforcement. The principle of reciprocity (Gouldner 1960) might contribute to this phenomenon. Expecting the other party to do the same in the future, one party might show the other party leniency even if contract provisions have been violated in the present transaction. Inconsistent with H5a, the shadow of the future was found to have no moderation effect on the influence of competence-based trust on the severity of controlling contract enforcement. The dominant effect of goodwill-based trust over competence-based trust on continued cooperation after a dispute (Malhotra and Lumineau 2011) may help to explain this phenomenon. Goodwill-based trust, compared with competence-based trust, has a wider limitation of domains, making it difficult to repair (Kim et al. 2006). Thus, transaction parties still severely enforce controlling contracts even when the likelihood of continued cooperation is high. According to these results, we posit that although the termination of a relationship is certain to occur sooner or later (Parkhe 1993), when this would happen should be made uncertain so that severe contract enforcement can be avoided and the cooperative relationship can be protected.

Conclusions and Implications

By exploring the relationship between prior ties and contract enforcement in the Chinese construction industry, which is embedded in *guanxi*, the authors posit that prior ties can mitigate the

Table 5. Results of SEM (Prior Tie as a Binary Variable)

Path	Estimate	SE	CR	<i>P</i>
GOO<—PRI	0.656	0.155	4.229	***
COM<—PRI	0.640	0.129	4.961	***
CON<—GOO	-0.288	0.121	-2.385	0.017
COO<—COM	-0.621	0.118	-5.274	***
CON<—PRI	-0.709	0.246	-2.884	***
COO<—PRI	-0.272	0.182	-1.491	0.136

Note: *N* = 195. *** indicates a significance level of $p < 0.01$. CR = construct reliability, which equals to Estimate/SE; COM = competence-based trust; CON = severity of controlling contract enforcement; COO = Severity of coordination contract enforcement; Estimate = estimated coefficient; GOO = goodwill-based trust; *P* = probability value; PRI = prior ties; SE = standard error.

Table 6. Results of SEM (Prior Tie as a Numerical Variable in Presence of Prior tie)

Path	Estimate	SE	CR	<i>P</i>
GOO<—PRI	0.650	0.210	3.088	***
CON<—GOO	-0.552	0.117	-4.746	***
CON<—PRI	-0.275	0.223	-1.231	0.218

Note: *N* = 99. *** indicates a significance level of $p < 0.01$. CR = construct reliability, which equals to Estimate/SE; CON = severity of controlling contract enforcement; Estimate = estimated coefficient; GOO = goodwill-based trust; *P* = probability value; PRI = prior ties; SE = standard error.

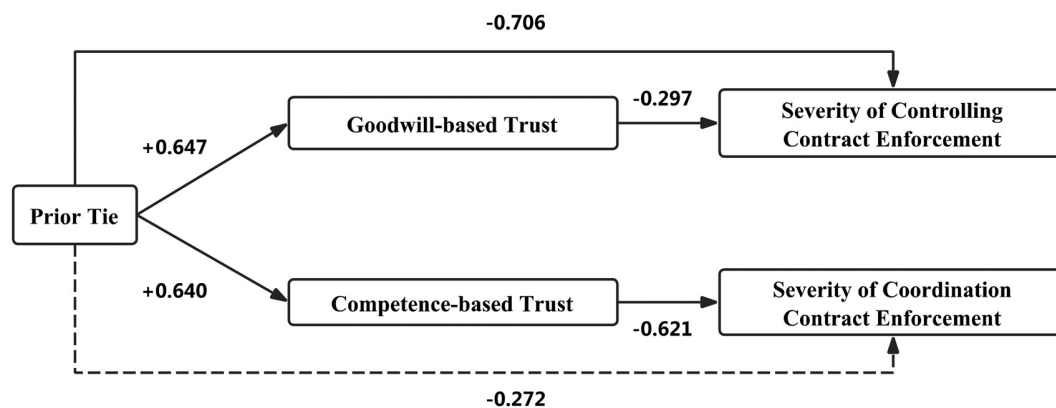


Fig. 3. Graphical representation of mediating effects

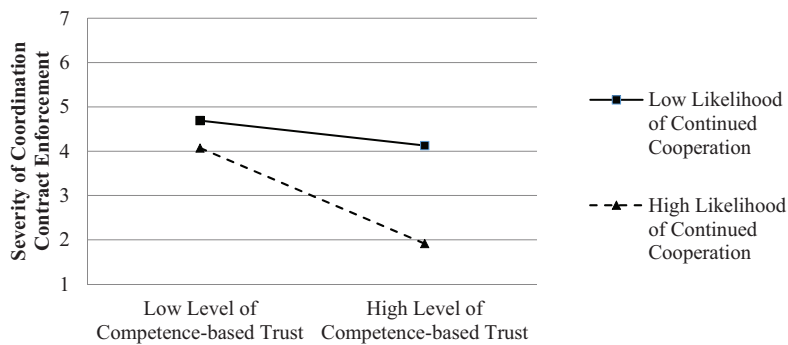


Fig. 4. Graphical representation of moderation effects

severity of controlling and coordination contract enforcement after violations by improving goodwill-based and competence-based trust. In addition, the shadow of the future between transaction parties can enhance the negative influence of competence-based trust on coordination contract enforcement. When the likelihood of continued cooperation is high, a transaction party will reduce the severity of contract enforcement to gain the probable benefits in the future.

This study provides a deeper understanding of contract enforcement and enhances the ability of transaction parties in construction projects to resolve contract violations. Theoretically, this study complements the literature related to contracts, especially in the little-understood area of contract enforcement after a contractual breach (Mooi and Gilliland 2013). This study enriches the current literature related to the antecedent of contract enforcement (Antia et al. 2006; Gilliland and Bello 2002; Jin et al. 2013). The empirical results show that prior ties and two dimensions of trust influence the severity of contract enforcement.

Second, this study offers a nuanced explanation of how prior ties influence the severity of contract enforcement. Two dimensions of trust have been distinguished in this study. The empirical results reinforce the findings of other studies (Buvik and Rolfesen 2015; Gulati 1995) that prior ties will increase the level of both goodwill-based and competence-based trust between transaction parties with a decreasing marginal increment. This distinction of trust provides a nuanced understanding, and thus a clearer route of function can be revealed. Complementing previous studies that focused on the function of trust in improving cooperation in transactions (Ring and van de Ven 1992; Zhang et al. 2009), this study extends the literature of this field by demonstrating that trust can also inhibit the negative side of transactions, thus protecting transactional relationships. To the best of the authors' knowledge, this study is the first one to differentiate contract enforcement from a multifunctional perspective, which is prevalent in studies of contract structure (Eckhard and Mellewig 2006; Schepker et al. 2013). This distinction provides new insight into issues surrounding contract enforcement.

Third, this study also offers an explanation of how the effects of two dimensions of trust on the severity of contract enforcement are influenced by different levels of the shadow of the future. The findings demonstrate that the inhibiting effects of competence-based trust on the severity of coordination contract enforcement can be strengthened under a higher level of the shadow of the future. Both the principle of reciprocity (Gouldner 1960) and the unique Chinese institutional environment and *guanxi* culture can explain these findings. Although different from *guanxi* (Wang 2007), which has two types of practices, including personal favor exchanges among

family and friends and exchange between power and interests (Chen et al. 2013), Western culture also guides exchanges between these parties. In addition, Eastern and Western business are becoming more similar in the twenty-first century. Thus, this study also clarifies the boundary conditions of its findings about the relationship between trust and the severity of contract enforcement.

This research can also inform managerial practice. Owners and contractors can benefit from the conclusions in this study by understanding the importance of prior ties, accumulation of trust, and the promise of continued cooperation in the future. Not only can two dimensions of trust be built through prior ties, but also the likelihood of trust being rebuilt after a violation of a contract is higher in the future. However, a trade-off has to be made by owners between decreasing marginal benefits from prior ties for trust and significant improvement of trust with new cooperative contractors. In addition, it is wise for owners to obfuscate the termination of the relationship even if it is certain to happen sooner or later, for the shadow of the future can be used to manipulate the severity of contract enforcement after a violation. To summarize, this study offers a comprehensive understanding of contract enforcement after contractual breaches, which are common in the construction industry.

Limitations and Future Research

Although this study is helpful to construction project management both in theory and practice, it is subject to several limitations. First, this study explored the shadow of the future, which focuses on future projects; thus, the contract enforcement in one project was treated as static. Contract governance is dynamic during a project (Reuer and Ariño 2002), especially in construction projects that often have long life spans. Hence, longitudinal data on contract enforcement during the lifecycle of a project are needed to test the dynamic effect. Second, this study relied on the data gathered in China, where the institutional environment and *guanxi* culture are unique and would influence decisions regarding contract enforcement. Thus, further research should be conducted across different countries and cultures to reach a more general understanding. Third, this study focused on the severity of contract enforcement rather than how the violations of contracts are resolved, which deserves more attention in future studies. Fourth, the shadow of the future is the only moderator explored in this study. However, more plausible factors, such as institutional environment and the degree of bilateral lock-in, should be taken into consideration in the future.

Appendix. Confirmatory Factor Analysis

Table 7. Results of Confirmatory Factor Analysis

Constructs and scale items	SFL
Goodwill-based trust (Cronbach's α = 0.879; CR = 0.890; AVE = 0.621)	
1. Our partner is very honest.	0.870
2. Our partner can keep its promises all the time.	0.849
3. Our partner is trustworthy.	0.779
4. Our partner makes decisions for our sake.	0.751
5. Our partner will help us when we are in trouble.	0.675
Competence-based trust (Cronbach's α = 0.882; CR = 0.872; AVE = 0.631)	
1. Our partner has a good reputation in the industry.	0.811
2. We do not suspect our partner's capabilities according to its reputation and qualification.	0.811
3. Our partner shows very professional knowledge in the process of cooperation.	0.764
4. We feel very confident about the skills, personnel, and capital of our partner to perform its job.	0.790
Severity of controlling contract enforcement (Cronbach's α = 0.840; CR = 0.859; AVE = 0.611)	
1. Our response to the other party's self-interest-seeking behavior with deception or guile was very severe.	0.899
2. Our response to the other party's violation of provisions about insurance and guarantee was very severe.	0.899
3. Our response to the other party's violation of provisions about payment was very severe.	0.662
4. Our response to the other party's violation of provisions about the quality of the project, materials, and equipment was very severe.	0.623
Severity of coordination contract enforcement (Cronbach's α = 0.878; CR = 0.885; AVE = 0.606)	
1. Our response to the other party's violation of provisions about the scope of the work was severe.	0.825
2. Our response to the other party's violation of provisions about technical specifications was severe.	0.749
3. Our response to the other party's violation of provisions about communication procedures was severe.	0.737
4. Our response to the other party's violation of provisions about the procedure of reporting and information submission was severe.	0.724
5. Our response to the other party's misunderstanding of the contract was severe.	0.850
Shadow of the future (Cronbach's α = 0.940; CR = 0.955; AVE = 0.843)	
1. Long relations of cooperation are expected between us.	0.895
2. It is inevitable to continue cooperation between us.	0.913
3. We will continue to sign contracts with the other party in the future.	0.933
4. The relationship between us will be sustained.	0.931
χ^2/DOF	1.866
GFI	0.846
AGFI	0.805
CFI	0.936
IFI	0.937
TLI	0.926
NFI	0.874
RMSEA	0.067

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