

# **Contract Violations in the Construction Projects: The Influence of How Contractual Obligations are Reached on the Severity of Contractual and Reputational Enforcement**

## **ABSTRACT**

Contract violations are frequent in construction projects due to the higher level of uncertainty and complexity in these projects. However, enforcement after a violation, including contractual and reputational enforcement, has received limited attention. This study distinguishes between three types of violations, i.e., violations of documented obligations (letter violations), violations of tacitly agreed obligations (spirit violations #1), and violations of unilaterally assumed obligations (spirit violations #2), based on the documentation and mutuality dimensions. Furthermore, this study compares the impacts of different types of violations on contractual and reputational enforcement and explores the mediating role of relational risk perception in the above impacts. By using the data collected from Chinese general contractors, this study concludes that compared with spirit violations #2, letter violations and spirit violations #1 will lead to more severe contractual enforcement and reputational enforcement while the latter two have no significant differences of their influence on the severity of enforcement. The mediating effects of relational risk perception are empirically supported. By doing this, this study contributes to the literature on contractual governance by exploring the effects of contract structure, especially the undocumented elements of contracts, on enforcement, and responds to the recent calls for the positive role of contract ambiguity. In addition, this study fills the gaps in the scarce literature on reputational enforcement and expands the studies on the antecedents of it. Project managers can benefit from this study by

recognizing the employment of reputational enforcement and the making better alignment between different types of violations and enforcement.

**KEYWORDS:** Contract violations; Contractual enforcement; Reputational enforcement; Risk Perception

## INTRODUCTION

High external uncertainty, complex project characteristics, and the one-off nature of construction projects lead to frequent unforeseeable environmental changes, participants' misunderstanding of tasks, and participants' opportunism, respectively, which in turn result in frequent contract violations in the construction industry [1]. According to the *2022 Global Construction Disputes Report*, participants' failure to understand or fulfill contractual obligations is in the "top three" list of the major sources of disputes for international construction projects in 2021<sup>1</sup>. Especially in the last two years, when the COVID pandemic has increased the frequency of violations and suspensions of projects, expenses have increased dramatically to deal with violations and resolving disputes.

However, the previous contracting literature [e.g., 2, 3, 4] has mainly focused on investigating how to prevent contracting violations while paid very little attention on the enforcement choice of one party against the other party's violation, let alone in the construction projects. The specific characteristics of construction projects complicate the issues of enforcement responses.

The complexity and uncertainty of construction projects make it costly to design a complete contract ahead of time [3]. Project participants may use relational responsibilities to

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<sup>1</sup> <https://www.arcadis.cn/en/knowledge-hub/perspectives/global/global-construction-disputes-report>

bind the parties' behavior to compensate for the incompleteness of contracts. As a result, there are obligations arise not expressly stated in the contract but are agreed upon jointly or assumed unilaterally by the parties [5]. Breach of these implied obligations could lead to a more complicated enforcement response.

This study uses the typology from Macaulay [6], adopts the classifications from Harmon and Kim [7] and, divides contractual obligations into letter expectations and spirit expectations. The former refers to expectations that are explicitly stated and documented, whereas the latter refers to expectations that are implicitly held but unstated in the contract, such as customary behavior, solidarity, and flexibility, as well as informal responsibilities regarding adherence to the social matrix. Additionally, the latter can be further subdivided into tacit agreements, which represent the expectations that are mutually consistent but not explicitly stated, and unilateral assumptions, which refer to the undocumented expectations that turn out to be mutually inconsistent. This study investigates the effects of violations of different types of expectations on sequent enforcement decisions.

Contractual enforcement, referring to legal sanctions specified in the contract and even including arbitration and litigation, can be used to respond to contract violations [1]. Nevertheless, this type of approach has proven to be accompanied by very significant legal and dispute resolution costs [8]. Furthermore, high asset specificity of construction projects means that terminating projects or switching partners will lead to the loss of previous investments or massive reinvestments in coordination with new partners. Consequently, the violated party is more prudent in using formal and legal enforcement because severe legal enforcement may incur retaliation from the other party in the following phase of the project (as long as the

projects are not terminated) [9]. Therefore, non-legal sanctions that refer to enforcement practices hurting the reputation of the violating party in a community, such as stigmatization or loss of ranking, serve as an alternative to legal enforcement [10]. The community may range from the individual company or corporate group level to the regional institutions formed by multiple companies, and then even to the international institutions. These approaches are not uncommon in the construction industry and serve as essential alternative enforcement mechanisms to contractual and legal enforcement.

From the individual company level to corporate group level, many construction companies develop a directory of partner companies to work with and try to reduce or avoid working again with these who have not worked well with before [11]. From the regional level, take China's construction market as an example, the China International Contractors Association rates companies based on their previous project experience and establishes a red list and a black list, which helps its member companies to make decisions on partner selection<sup>2</sup>. Many international institutions, such as The World Bank, The Asian Infrastructure Investment Bank (AIIB), the New Development Bank (NDB), and the Multilateral Development Bank (MDB) may put the violating company into a blacklist.

To address issues related to both of the two types of enforcement in the construction industry, this study intends to explore the following questions:

*RQ1: How do different types of violations (letter violation, mutually agreed spirit violation, and unilaterally assumed spirit violation) affect two kinds of enforcement (contractual enforcement and reputational enforcement)?*

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<sup>2</sup> [https://www.chinca.org/hdhm/industry\\_index.html](https://www.chinca.org/hdhm/industry_index.html)

In order to scrutinize the link between violations and enforcement, this study tries to explore the mediating role of relational risk perception. For one thing, Harmon and Kim [7] argue that for the different types of violations, the violated party perceives a different level of opportunistic motive that is almost synonymous with relational risk perception. For another, enforcement is part of governance mechanisms, the aim of which is to manage risks in construction projects, perceived relational risks are important considerations for firms in making enforcement decisions. Therefore the following question will be answered in this study:

*RQ2: How does relational risk perception mediate the relationship between the different types of contract violations and enforcement?*

The rest of this study is structured as follows. Firstly, the studies on contractual obligations and contract violations, and contractual enforcement and reputational enforcement are reviewed. Then, the hypotheses are proposed based on the relevant theories and previous studies. The methods employed in this study are demonstrated. The next section provides empirical results and discusses the findings of this study. Finally, the conclusions, contributions, and limitations of this study are discussed.

## **LITERATURE REVIEW**

### **Contractual Obligations and Violations**

A large number of studies [e.g., 4, 12, 13] have emphasized that by stipulating the rights and obligations of participants, specifying transaction objectives, and providing for variation plans, a written contract can reduce disputes and ensure high performance. Empirically, these researchers have either measured the number of pages or sentences of contracts, or asked respondents to evaluate the extent to which the interfirm exchange is governed by formal and

written contracts. But due to bounded rationality, a written contract is often incomplete [14]. Nevertheless, the expectations that not put into the written contract do not necessarily constitute contractual obligations since companies may develop contractual plans in many non-written alternative ways to cope with the incompleteness of the contract. Macaulay [6] suggested four categories that describe different ways of reaching contractual plans: (1) explicit and careful expectations, referring to explicitly documented and mutually understood expectations; (2) tacitly agreed obligations, referring to mutually consistent but undocumented expectations; (3) unilateral assumptions, referring to undocumented expectations that turn out to be mutually inconsistent; and (4) unawareness, referring to the issues that parties never have thought of.

Harmon and Kim [7] suggested that the classifications of Macaulay [6] are based on two dimensions—documentation and mutuality. As shown in **Fig. 1**, contractual obligations can be divided into letter obligations, which correspond to the first way of reaching contractual plans proposed by Macaulay [6], and spirit (undocumented) obligations, which correspond to and can be furthermore distinguished into the last three ways based on the degree of mutuality of obligations. This study suggests that the fourth way—unawareness, because neither party thinks about such issues beforehand, should also be considered. The parties rarely regard failure to perform this kind of obligation as a contract violation, thus they often resolve it through contract renegotiation rather than contractual enforcement<sup>3</sup>. Therefore, this study considers three types of contract violations, including letter violations (violations of explicit and documented obligations), spirit violations #1 (violations of tacitly agreed obligations), and spirit violations #2 (violations of unilaterally assumed obligations).

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<sup>3</sup> The interviews conducted with practitioners in this study confirm this argument, which will be explained in the Methods section.

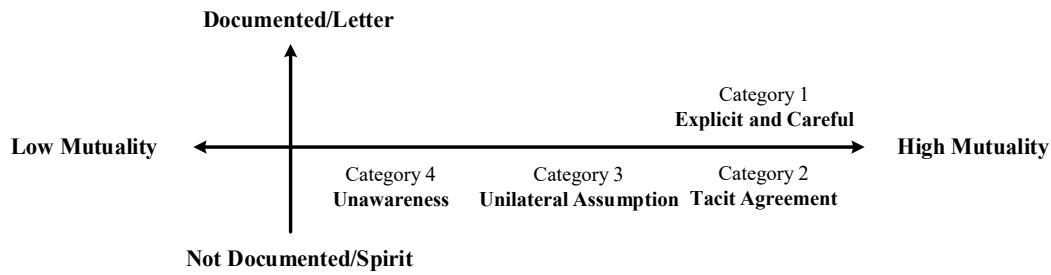


Fig. 1. Ways of contractual plans [7]

In construction projects, it is of great practical relevance to distinguish these three types of contractual obligations and violations based on the dimensions of documentation and mutuality. In terms of the dimension of documentation, project participants usually tend to design a detailed formal contract and put as many contingencies, rights and responsibilities as possible into the contract documents, which constitute the explicit and careful part of contractual obligations. However, contracts are often incomplete, which is further exacerbated by the high level of environmental uncertainty, long project duration, and high complexity that characterize construction projects. Both parties may presume some obligations that the other party should undertake based on industry practices, customary practices, tacit agreements, solidity, etc.,.

In terms of the dimension of mutuality, the two parties usually share a consistent understanding of letter expectations while they may disagree on spirit expectations. The spirit expectations can be divided into tacit agreement and unilateral assumptions depending on the degree of the divergence. This study takes FIDIC Conditions of Contract for Construction (1999), one of the widely used international model construction contracts, as an example. Clause 6.3 [Persons in the Service of Employer] states “The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer’s Personnel” (p.21) while the

contract does not prevent the Employer from recruiting the Contractor's Personnel [15]. Some companies may think that this limitation should also apply to the Employer in accordance with industry practice. Nevertheless, others do not recognize this as industry practice and since it is not explicitly stated in the contract, the Employer is not limited in hiring the Contractor's Personnel. The expectation can be considered a unilateral assumption. Another example is the COVID pandemic sweeping the world. Although FIDIC Conditions of Contract for Construction (1999) does not stipulate the contingencies exactly after the outbreak of the COVID pandemic, parties are very likely to identify it as force majeure according to industry practice. It can be recognized as a tacit agreement since there is high mutuality between the two parties.

It is important to acknowledge that the two contacting parties may have different determinations about the same expectation based on the two dimensions. For example, one party believes that certain obligations are expectations written in documents despite the ambiguous words, while the other party may think that these obligations are only presumed by its counterparty; some believe that certain expectations can be inferred based on industry practice thus there should be a high level of mutuality about these expectations, while the other party may consider them as a unilateral assumption by its counterparty. Since this study is concerned with how the violated party judges the causes of the contract violations and thus applies enforcement practices, the violated party's identification of the type of contractual obligations and violations is the focus of this study.

Previous studies have conducted several seminal studies on the distinction between different types of violations and their different impacts on subsequent behaviors such as



enforcement decisions. Harmon, et al. [16] and Yao, et al. [1] find that violations of letter and spirit expectations classified according to the dimension of documentation lead to different levels of trust breach and thus influence punitive behavior. The inconsistency between the two parties regarding their obligations has been proven by many scholars to be the main reason for disputes and even litigation and arbitration in the construction industry [17]. Considering the practical importance of distinguishing contract violations, and their different impacts on subsequent behavior and decisions, this study attempts to explore how different types of violations lead to differences in the severity of subsequent enforcement.

### **Contractual and Reputational Enforcement**

A number of previous studies have examined the role of contractual and legal enforcement in the handling of contract violations in construction projects. However, scholars of legal economics have pointed out that the approaches are associated with high ex-post transaction costs, including monitoring costs and dispute resolution costs [18], which are more pronounced in developing countries. In addition, harsh contract enforcement may lead to retaliation from the other party. This problem may be exacerbated by the “one-off” nature of the project since changing the retaliating partner may involve time and cost losses such as re-tendering and resource reallocation [19]. Therefore, in recent years, some scholars have begun to explore alternative mechanisms for contractual enforcement.

Some studies [8, 20] have proposed that reputational enforcement is one of the most significant non-legal sanctions, which serves as an alternative to contractual enforcement. Theoretically, the existing studies on the combination of reputational and contractual mechanisms are based on two main theories—transaction cost economics (TCE) and relational

contracting (RC). TCE suggests that on the one hand, a reputation system, as a complement to legal and public institutions, can serve as a private ordering and reduce the transaction costs of selecting partners [14]; and on the other hand, a positive reputation serves as a “hostage”, reducing the deviant behavior of members within the system due to the concerns about the destruction of their reputation [21]. Therefore, according to TCE, a good reputation can play a positive role because the party with a good reputation can be evaluated ex-ante and monitored ex-post more easily [21]. Similarly, studies from the view of RC have demonstrated that a reputation system can promote relational behavior because the concerns about reputation outweigh the temptation to break a relational contract [10].

Research on reputation mechanisms has been gradually increasing in a variety of fields, including organizational behavior, finance, and strategic management. These studies have generally indicated that corporate reputation tends to influence the perceptions and behaviors of stakeholders, such as internal employees, external investors, and governments [22]. Nevertheless, the combination of reputational enforcement and contract research has mainly focused on marketing, particularly in the area of e-commerce [23]. These studies propose that an online reputation system, as an alternative to formal contractual mechanisms for quality assurance in a buyer-seller relationship, promotes trust and relational behavior [24, 25]. Several studies in the construction industry have also made a few attempts to explore the impacts of reputation on construction participants’ performance of contracts and cooperative behavior [26]. Beyond the process of contractual governance during project execution, some studies have investigated how corporate reputation influences the selection of partners [27-29]. For example,

Biong [27] has concluded the significance of reputation in a general contractor's selection of subcontractors when there is information asymmetry about ability of potential subcontractors.

Through the above literature review, this study finds that few studies have explored the role of reputational enforcement in governing participants' behavior during project execution in the construction industry. More significantly, studies, combining reputational enforcement and contractual governance, have usually focused on how a mature reputation system can *prevent* contract violations and opportunistic behavior. But few of them have investigated how and when the reputation system could be used as a response to an actual violation (that is, *handling* violations). That is to say, on what basis does the violated party decide to degrade the violating party's reputation in a community or even blacklist it after an actual violation.

## **HYPOTHESIS DEVELOPMENT**

### **Contract Violations, Contractual Enforcement, and Reputational Enforcement**

The authors argue that different types of contract violations will lead to various levels of severity of contractual and reputational enforcement. With respect to the dimension of mutuality, this study suggests that the higher the degree of mutuality of violated obligations, the more severe the subsequent contractual and reputational enforcement. Expectations with high mutuality are recognized as clear obligations, the violations of which release obvious signals of intentionality and opportunism. In terms of contractual enforcement [16], on the one hand, perception of high intentionality may lead to more negative emotions and thus, more harsh punitive responses (i.e., more severe contractual enforcement) [30]; and on the other hand, higher perceived opportunism incurs the violated party's more concern that the violating party may opportunistically breach the contract in subsequent phases of the current project (as

long as the current contract is not terminated). Thus more severe contractual enforcement can be used as a deterrent [9].

Similarly, highly perceived opportunism resulting from violations of high mutuality of obligations triggers negative emotions [31] and thus causes a higher likelihood of lowering each other's reputation within the community. Besides, in order to avoid such a company with bad will from harming itself or the members of the community in other projects in the future, the violated party will also inform other members of the community to lower the reputation of the violating party. Therefore, the authors conclude that the violations of high mutuality of obligations will lead to more severe contractual enforcement and reputational enforcement. In another word, compared with spirit violations #2, letter violations and spirit violations #1 will lead to more severe enforcement.

Regarding the dimension of documentation, this study proposes that there is no significant differences in the enforcement resulting from letter violations versus spirit violations #1. A large body of project management literature has emphasized the importance of informal contracts in the construction industry [5, 32], which is similar to the tacit agreement obligations in this study. Violations of these obligations are presumed to be high opportunism, resulting in very negative sentiments, and subsequent severe enforcement [33].

In addition, although some industry practices, social obligations, and other commonly accepted expectations are not explicitly written in the contract, they may also be enforced by third parties in practice [34]. In the case of the COVID pandemic, for example, although many contracts do not explicitly state the delineation of rights and obligations after a pandemic, the parties follow the handling guidance published by many industry associations and

governments<sup>4</sup> or according to the definition of force majeure. If any party fails to comply with these guidelines or stipulations about force majeure, the other party can still employ legal enforcement, even litigation or arbitration, and inform other members of the community of the other party's non-compliance [35]. Therefore, this study proposes that with high mutuality, whether obligations are written in the contract or not does not significantly affect the severity of enforcement. That is to say, there is no significant difference in the severity of contractual and reputational enforcement resulting from letter violations versus spirit violations #1. In summary, the following hypotheses are proposed:

H1: Different types of contract violations lead to different contractual enforcement (letter violation=spirit violations #1>spirit violations #2)<sup>5</sup>.

H2: Different types of contract violations lead to different reputational enforcement (letter violation=spirit violations #1>spirit violations #2).

### **Mediating Role of Relational Risk Perception**

This study suggests that relational risk perception is one of the most important mediating factor on the relationship between contract violations and enforcement. Relational risks refer to the likelihood and effects of failing to achieve satisfactory collaboration [36]. Relational risk perception is mostly caused by the mismatch of contracting parties' interests in contracts and thus potential opportunistic behavior, including shirking, "hold-up", and misrepresenting information [37]. The inter-organizational control literature has empirically supported the role

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<sup>4</sup> For example, recently, a province of China (Jiangsu Province) published a guidance for construction participants in the case of being impacted by the COVID pandemic. The guidance clearly categorizes the COVID pandemic as an event of force majeure and explicitly states the sharing of additional costs. The guidance can be found in [http://jsszfhcxjst.jiangsu.gov.cn/art/2022/7/12/art\\_49384\\_10540032.html](http://jsszfhcxjst.jiangsu.gov.cn/art/2022/7/12/art_49384_10540032.html).

<sup>5</sup> "=" means there is no significant difference in terms of the severity of resulting enforcement while ">" means the former leads to more severe enforcement than the latter.

of formal and informal control in reducing relational risks and opportunism [38, 39]. Likewise, studies based on TCE and RC have demonstrated that transaction parties invest in designing appropriate governance mechanisms, including contracts and informal mechanisms, to address relational risks [2, 3].

As the last subsection mentioned, letter violations and spirit violations #1 may release a signal of intentionality and opportunism. When a violation is perceived to be intentional and as a result of opportunism, then the violated party is more likely to perceive higher relational risks (i.e., perceive a higher probability of opportunistic behavior in subsequent phases of the project or in other projects) [16]. High relational risks will encourage the violated party to apply more severe contractual enforcement to ensure that the violating party will provide satisfying cooperation in the future [9]. At the same time, it may also employ harsh reputational enforcement to destruct the violating party's reputation, which reminds other members of the community of being cautious of cooperating with this party. In summary, the following hypotheses are proposed:

H3: Different types of contract violations lead to different relational risk perception (letter violation=spirit violations #1>spirit violations #2).

H4: Relational risk perception mediates the relationship between contract violations and contractual enforcement.

H5: Relational risk perception mediates the relationship between contract violations and reputational enforcement.

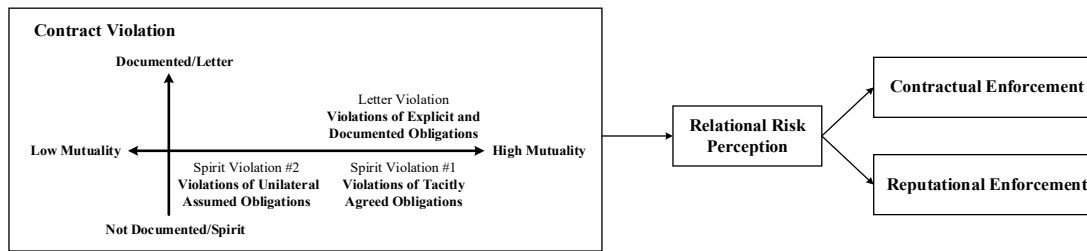


Fig. 1. Conceptual Framework

## METHODS

### Sample and Data Collection

The data in this study are collected from Chinese general contractors. Since the scales used in this study were translated from English scales, the authors interviewed three industry experts who were fluent in both Chinese and English to ensure the face validity of our Chinese questionnaire and its applicability in the construction industry, which resulted in the initial version of the questionnaire. Besides, a pilot study was conducted by interviewing 21 contract managers or project managers with abundant experience in dealing with violations to develop a reliable and valid questionnaire. Each interview lasted for 30 to 45 minutes. In particular, the authors encouraged the interviewees to give their comments and advice on the measurement of reputational enforcement and types of contract violations since few studies in the construction industry have empirically investigated the two constructs.

In the initial questionnaire, two choice items are employed to measure types of contract violations. The first one is “The expectation violated by the counterpart: a) is expressly written in the contract; b) is not clearly stipulated in the contract” to differentiate letter violations and spirit violations in terms of the documentation dimension. If the respondent selects b), the second one is displayed, which is, “The expectation violated by the other party: a) is tacitly

agreed by the two parties before the violation; b) is unilaterally assumed by our company before the violation; c) is unaware by either party before the violation”, representing spirit violations #1, spirit violations #2, and a violation of an unaware obligation (spirit violations #3), respectively. If the respondent selects a) in the first item, the second one will be skipped.

However, regarding the option c) on the second question, the authors argue that since this kind of expectation is not realized by both parties beforehand, failure to meet these expectations can hardly be considered as a contract violation by the violated party. The arguments are confirmed by the interviews. Almost all the interviewees mentioned that a respondent seldom recalled violations of unaware expectations when being asked to recollect a breach of contract. Failure to comply with the expectations is neither recognized as a contract violation nor easily enforceable by third parties. Instead, it is often through contract renegotiation that the parties include this part of the contract that they were not previously aware of at all. Based on our arguments and the interviews, the option c) on the second question is deleted.

Further, the authors made some modifications to the measurement of reputational enforcement based on the advices from the interviewees. Initially, the authors adopted and modified the measurement of Chen, et al. [20]. Reputational enforcement was measured based on four levels. They developed four items to measure reputational enforcement. “We blacklisted the violating party within: a) our company, b) our group of companies, c) local institution in our industry, and d) the international institution in our industry.” The score of reputational enforcement is 1,2,3,4,5 respectively when the respondent chooses none of these options, only chooses option a), chooses both options a) and b), chooses options a), b) and c), and chooses all of these options. Nevertheless, the interviewees suggested that they seldom



completely black out the violated party. Therefore, according to their suggestions, “blacklisted the violating party” is replaced by “reduced the violating party’s reputation”.

After the pilot study, the authors began to send out a large-scale distribution of questionnaires. The respondents consist of the participants, including contract managers, lawyers, project managers, etc., in five advanced training programs on contract management in international construction projects. They are suitable for answering the questionnaire because they have rich experience in contract management. Besides, the respondents were informed that they should not fill out the questionnaire if they had no experience in dealing with the subcontractors’ contract violations. They were asked to recall the latest contract violation of one of their subcontractors and answer the questionnaire based on the recalled violation. They were informed that the answers were anonymous and that there were no criteria for right or wrong answers.

The authors distributed 329 questionnaires and obtained 182 responses. One respondent took just about 90 seconds to finish the questionnaire. It is less than 120 seconds, which is believed by the authors to be the minimum time needed for finishing the questionnaire. Thus, that questionnaire was removed from the sample. A total of 181 valid responses were eventually obtained. **Table 1** presents the descriptive statistics regarding the sample. It shows that the vast majority (96.7%) of respondents have more than 3 years’ work experience and most of them are project/department managers or contract managers. Most of the subcontracting projects in the sample were for periods longer than one year. All of these have shown a good representativeness of the sample.

**Table 1.** Characteristics of respondents and their projects

Range	Frequency	%
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<b>Work experience</b>		
< 3 years	6	3.3
3-5 years	26	14.4
6-8 years	52	28.7
9-11 years	40	22.1
> 11 years	57	31.5
<b>Job position</b>		
Project / Department manager	75	41.4
Contract manager	58	32.0
Staff at the headquarters	36	19.9
Others	12	6.6
<b>Project Location</b>		
China	70	38.7
Other countries	111	61.3
<b>Subcontracting Duration</b>		
≤ 1 year	19	10.5
1-3 years	115	63.5
> 3 years	47	26.0

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## Measures

### *Dependent Variables*

*Contractual Enforcement*: the measurement of Antia and Frazier [30] as adopted and modified based on the context of the construction industry. Besides, to make a clearer distinction between contractual enforcement and reputational enforcement, the authors incorporated “legal” into all the items to emphasize the legal and contractual aspects of enforcement. Four items are as follows: “1) Our legal response to this violation was firm. 2) We took tough legal measures when this particular clause was violated. 3) Our legal response to contract violation by the contractor is uncompromising. 4) We took stern legal punitive action against this violation.” A 7-point Likert scale was applied (1 = strongly disagree while 7 = strongly agree).

*Reputational Enforcement:* The authors adopted and modified the measurement of Chen, et al. [20] according to our interviews with professionals. Four choice questions were used to measure reputational enforcement: We reduced the violating party's reputation: 1) within our company; 2) within our group of companies; 3) within the local institution in our industry; 4) within the international institution in our industry. The score of this variable ranks from 4 to 0 based on their answers' of "yes" from question 4 to 1 separately.

### ***Independent Variable***

*Contract Violation:* Few studies have measured the types of contract violations. Based on the definition of three types of contract violations, we developed two choice questions to measure them. "The expectation violated by the counterpart: a) is expressly written in the contract; b) is not clearly stipulated in the contract" was used to differentiate letter violations and spirit violations in terms of documentation. Furthermore, if and only if the respondent selects b) (that is, spirit violation), he or she will be asked the second question: The expectation violated by the other party: a) is tacitly agreed by the two parties before the violation; b) is unilaterally assumed by our company before the violation. The former represents spirit violations #1, that is, violations of tacitly agreed obligations while the latter represents spirit violations #2, that is, violations of unilaterally assumed obligations.

### ***Mediating Variable***

*Relational Risk Perception:* Four items are adopted and modified from Zhang and Li [40] and Yao, et al. [9]. A 7-point Likert scale was applied (1 = strongly disagree while 7 = strongly agree). "1) We think that the relationship with our partner will deteriorate in the foreseeable future. 2) We think that our partner will profit at the expense of our interests in the foreseeable

future. 3) We think that our partner will show opportunistic behavior, such as shirking, cheating, and distorting information, in the foreseeable future. 4) We think that this partner may break promises in the foreseeable future.”

### **Control Variable**

*Contract Duration:* “What is the duration of the subcontracting project?” For a project of a longer duration, the violated party is less likely to apply severe contractual enforcement in case the violating party retaliates in the following phase of the subcontracting project.

*Project Location:* “Is the project located in China?” Projects located in China may be influenced by the Chinese cultural context that emphasizes long-term cooperation rather than unilateral contractual enforcement.

*Prior Ties:* “How many times has your company worked with this violating party before the current project?” The violated party may perceive fewer relational risks and thus apply less severe enforcement to respond to the violation of a partner with whom they have been working together for a long time.

*Legal Enforceability:* “The legal system can provide assurances for contractual enforcement (1 = strongly disagree while 7 = strongly agree).” In countries with a weak legal system and thus high legal enforcement costs, the violated party may apply reputational enforcement as an alternative to contractual enforcement.

*Strategic Importance:* “This project is of strategic importance to our firm (1 = strongly disagree while 7 = strongly agree).” The violated party may tend to have absolute control over strategically important projects by utilizing tough enforcement.

*Contract Completeness*: “The subcontract is very clear and detailed in general (1 = strongly disagree while 7 = strongly agree).” A complete contract can safeguard against the violating party’s retaliation and relational risks so the violated party may implement severe enforcement with less worry about retaliation.

*Loss of Violation*: “This violation caused a great loss to our company (1 = strongly disagree while 7 = strongly agree).” Intuitively, more serious violations may lead to higher risk perception and more severe enforcement practices.

### **Reliability and Validity**

This study used SPSS 22.0 to obtain Cronbach’s alpha to test the reliability of the scales used in this study. Since only relational risk perception and contractual enforcement are latent variables, the authors calculated the alpha values of the two variables. The values range from 0.885 and 0.869, respectively, higher than the baseline value of 0.7, and thus the reliability of the questionnaire was satisfactory.

This study used AMOS to test the validity of the measures. The authors first conducted a confirmatory factor analysis for the two latent variables of interest in this paper. The results show that  $\chi^2/df = 1.973$ , GFI=0.953, AGFI=0.911, TLI=0.966, and RMSEA=0.074, indicating a good model fit. The CR values corresponding to the two latent variables are 0.89 (relational risk perception) and 0.87 (contractual enforcement), both higher than the benchmark value of 0.7. The AVE values corresponding to the two variables are 0.66 (relational risk perception) and 0.64 (contractual enforcement), both higher than the benchmark value of 0.5. This indicates that the measurement in this study has good convergent validity. The square

roots of the AVE values of these two variables (0.82 and 0.80) are also greater than the correlation coefficient of the two (0.32), indicating satisfactory discriminant validity.

## RESULTS AND DISCUSSION

### Effects of Contract Violation on Contractual Enforcement

The hierarchical regression analyses using Stata 14 are conducted in this study. All regression results are shown in **Table 2**. To test H1, all control variables were firstly added into the regression model, as shown in **Model 4**. The independent variable were then added into **Model 5**. Since the independent variable in this study is a categorical variable with three values, we constructed two dummy variables, *violation\_S1\_S2*<sup>6</sup> and *violation\_L\_S2*<sup>7</sup>, by setting spirit violations #2 as the baseline. That is to say, both *violation\_S1\_S2* and *violation\_L\_S2* take a value of 0 meaning that the violator breaches a unilateral assumed obligation (spirit violations #2). The *violation\_S1\_S2* with a value of 0 and the *violation\_L\_S2* with a value of 1 mean that the violator breaches a documented expectation (letter violations). The *violation\_S1\_S2* with a value of 1 and *violation\_L\_S2* with a value of 0 mean that the violator breaches an undocumented but tacitly agreed expectation (spirit violations #1). In **Model 5**, the significant and positive regression coefficient ( $\beta=0.8$ ,  $p<0.01$ ) of *violation\_S1\_S2* implies that spirit violations #1 lead to more severe contractual enforcement compared with spirit violations #2. Similarly, the significant and positive regression coefficient ( $\beta=0.537$ ,  $p<0.05$ ) of *violation\_L\_S2* implies that letter violation leads to more severe contractual enforcement compared with spirit violations #2.

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<sup>6</sup> The subscript "S1" is an abbreviation for undocumented but high mutual expectations; The subscript "S2" is an abbreviation for undocumented and low mutual expectations.

<sup>7</sup> The subscript "L" is an abbreviation for documented expectations.

**Table 2: Regression results**

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
	Relational Risk Perception (RRP)			Contractual Enforcement (CE)			Reputational Enforcement (RE)				
Contract Duration	.005 (.176)	-.008 (.172)	-.008 (.172)	-.069 (.171)	-.07 (.165)	-.07 (.165)	-.068 (.162)	.075 (.183)	.071 (.181)	.071 (.181)	.073 (.173)
Project Location	-.126 (.214)	-.119 (.209)	-.119 (.209)	-.063 (.208)	-.054 (.2)	-.054 (.2)	-.03 (.196)	-.131 (.223)	-.125 (.22)	-.125 (.22)	-.087 (.211)
Prior Ties	.076 (.079)	.057 (.079)	.057 (.079)	.071 (.077)	.019 (.076)	.019 (.076)	.008 (.074)	.042 (.082)	.012 (.083)	.012 (.083)	-.006 (.08)
Legal Enforceability	.067 (.063)	.042 (.062)	.042 (.062)	.281*** (.061)	.261*** (.059)	.261*** (.059)	.253*** (.058)	.14** (.065)	.124* (.065)	.124* (.065)	.11* (.063)
Strategic Importance	-.19** (.075)	-.159** (.074)	-.159** (.074)	-.043 (.073)	.001 (.071)	.001 (.071)	.033 (.071)	-.098 (.078)	-.068 (.078)	-.068 (.078)	-.018 (.076)
Contract Completeness	.122* (.07)	.058 (.077)	.058 (.077)	.089 (.068)	-.03 (.074)	-.03 (.074)	-.041 (.072)	.033 (.073)	-.041 (.081)	-.041 (.081)	-.06 (.078)
Loss of Violation	.334*** (.075)	.325*** (.074)	.325*** (.074)	.158** (.073)	.158** (.07)	.158** (.07)	.093 (.073)	.329*** (.078)	.327*** (.077)	.327*** (.077)	.223*** (.078)
<i>violation_S1_S2</i>		.8*** (.265)			.765*** (.254)		.605** (.255)		.587** (.279)		.332 (.274)
<i>violation_L_S2</i>		.537** (.251)			.906*** (.24)		.798*** (.238)		.579** (.264)		.408 (.255)
<i>violation_S1_L</i>			.263			-.141				.008	

			(.269)			(.258)				(.283)	
<i>violation_S2_L</i>			-.537**			-.906***				-.579**	
			(.251)			(.24)				(.264)	
Relational Risk Perception							.201***				.319***
							(.072)				(.077)
_cons	3.071***	3.056***	3.593***	2.212***	2.276***	3.182***	1.661**	-.486	-.46	.119	-1.436*
	(.724)	(.71)	(.763)	(.705)	(.679)	(.73)	(.701)	(.755)	(.747)	(.803)	(.751)
Observations	181	181	181	181	181	181	181	181	181	181	181
R-squared	.163	.208	.208	.168	.241	.241	.275	.136	.167	.167	.244

*Standard errors are in parentheses*

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$



To compare more directly between letter violation and spirit violations #1, this study run **Model 6**. The authors constructed two dummy variables, *violation\_S1\_L* and *violation\_S2\_L*, by setting letter violation as the baseline. In other words, a letter violation occurs when both variables take a value of 0. The *violation\_S1\_L* with a value of 1 and the *violation\_S2\_L* with a value of 0 mean that the violator conducts spirit violations #1. The insignificant coefficient ( $\beta=-0.141$ ,  $p>0.1$ ) of *violation\_S1\_L* implies that there is no significant difference between spirit violations #1 and letter violations in terms of contractual enforcement. Thus, H1 is supported.

Yao, et al. [1] have found that breaching the obligations written in the formal contract will lead to more severe legal enforcement compared with breaching an informal contract, which is in line with this study. But different from Yao, et al. [1], this study further differentiates the informal contract breach based on the level of mutuality and finds that different types of spirit violations will trigger different responses. The negative reactions arising from violating those mutually agreed undocumented obligations are not even significantly different from the negative reactions from a letter violation.

Besides, both practices and previous studies have suggested that contract wording should be as clear as possible [17] and emphasized the importance of putting as many clauses as possible into the contract [12]. Therefore, contracting literature has empirically supported the positive role of contract clarity [17, 41], contract inclusiveness [42], contract extensiveness [43, 44], contract complexity [45], contract detail [46], and contract completeness [12].

Nevertheless, there is a recently growing interest in the positive role of contract ambiguity, referring to the lack of contractual clarity on parties' obligations that are susceptible to more

than one interpretation [47], in promoting parties' cooperative behavior and ensuring performance. For example, Zheng, et al. [48] have concluded that contract ambiguity can promote a cooperative dispute-resolving approach and facilitate cooperation, which reduces the likelihood of litigation.

This study responds to the paradox of the two streams of literature. In particular, the ambiguity of the obligation would play a positive role only when the obligation was considered to be a unilateral assumed one (instead of a tacitly agreed expectation) since violation of this kind of obligations will lead to more lenient enforcement compared to letter violations. On the contrary, not only does contract ambiguity relating to tacit agreement lead to no significant difference in the severity of enforcement compared with letter violations, but it may also increase the frequency of violations due to more interpretations and misunderstandings, which endanger the success of the project. Future studies examining the effects of contract clarity or ambiguity must therefore concentrate on determining whether the obligations are only ambiguous in contract documents but clear in parties' minds.

### **Effects of Contract Violation on Reputational Enforcement**

In terms of reputational enforcement, the same steps were taken and the same variables were placed into the model as the test of H1, shown in **Model 8**, **Model 9** and **Model 10**. In **Model 9**, the significant and positive regression coefficient ( $\beta=0.587$ ,  $p<0.05$ ) of *violation\_S1\_S2* implies that spirit violations #1 lead to more severe reputational enforcement compared to spirit violations #2. Similarly, the significant and positive regression coefficient ( $\beta=0.579$ ,  $p<0.05$ ) of *violation\_L\_S2* implies that letter violation leads to more severe reputational enforcement compared with spirit violations #2. In **Model 10**, the insignificant coefficient ( $\beta=-0.008$ ,  $p>0.1$ )

of *violation\_S1\_L* implies that there is no significant difference between spirit violations #1 and letter violations in terms of reputational enforcement. Thus, H2 is supported.

In consideration of the considerable legal cost of contractual enforcement, reputational enforcement has been a significant way of dealing with contract violations in the construction industry. However, most previous studies have mainly focused on the legal aspect of enforcement while ignoring the reputational dimension of enforcement in the construction industry. Several studies have suggested that the violated party possibly avoids working with the violating party on other projects in the future after a violation, i.e., relational enforcement [1, 8, 49]. In contrast to these studies, this study extends relational enforcement to reputational enforcement, which involves a broader level, including a group of companies, local institutions, and international institutions.

Chen, et al. [20] have focused on reputational enforcement in the construction industry and found that perceived intentionality leads to a higher possibility of blacklisting the violating party in the community. The findings of this study are consistent with their conclusions, which imply that letter violations and spirit violations #1 result in harsher reputational enforcement because they are more likely to be considered intentional and opportunistic.

In addition, many studies have concluded that construction firms pay special attention to the reputation of the other party when selecting partners because of the high uncertainty nature of construction projects [50]. For example, Biong [27] found that the stronger the degree of uncertainty and information asymmetry, the more likely the general contractor relies on reputation to select subcontractors. This study supports this finding from another view, where the occurrence of a contract violation (especially a breach of tacit agreement) makes it

impossible for the violated party to accurately determine the other party's motives for this violation. It exposes the relationship between the two parties to high uncertainty, and also increases the violated party's concerns about the other party's use of information advantage for private gain, so they may use severe reputational enforcement to relieve the concerns.

### **Mediating Role of Relational Risk Perception**

Three steps need to be conducted to test the mediating role according to Baron and Kenny [51]: regressing the mediating variable on the independent variable; then, regressing the dependent variable on the independent variable; last, regressing the dependent variable on both the independent variable and the mediating variable. A mediating effect exists when the coefficients of the first two regressions are significant and the coefficient of the independent variable in the third regression is reduced compared with the coefficient in the second regression.

First, the authors regressed relational risk perception on contract violations. **Model 2** shows that both letter violation and spirit violations #1 lead to a higher level of relational risk perception compared with spirit violations #2 while **Model 3** shows that there is no significant difference between letter violation and spirit violations #1 in terms of relational risk perception. Therefore, H3 is supported.

The findings are inconsistent with Harmon and Kim [7] who have concluded that letter violations lead to a higher perception of opportunism and trust breach than both spirit violations with high mutuality of the expectations violated and those with low mutuality. This study suggests that it may be the special nature of the construction industry that causes the discrepancy. The high complexity, high environmental uncertainty and long duration of the

construction projects make it impossible to design a complete contract [2]. Therefore, in practice, there are a large number of conventional practices based on industry practices, cooperation history and even guidance issued by industry institutions. Although not included in the formal contract, they are still valued by project participants, and violations of them are considered strong opportunistic behavior.

Second, evidence of H1 has supported the significant relationship between contract violation and contractual enforcement. Contractual enforcement on both contract violation and relational risk perception were regressed at the end, shown in **Model 7**. The result shows that relational risk perception leads to more severe contractual enforcement and the coefficients of *violation\_S1\_S2* and *violation\_L\_S2* are reduced compared with the coefficients in **Model 5**. Therefore, H4 is supported. Also, **Model 11** shows that relational risk perception leads to more severe reputational enforcement, and the coefficients of *violation\_S1\_S2* and *violation\_L\_S2* are reduced compared with the coefficients in **Model 9**. Combined with supported H3 and partly supported H2, H5 is supported.

As mentioned by Antia and Frazier [30] in their hypothesis development section, one of the important influences on contractual enforcement is the motivation of the violator. The present study complements their study by empirically verifying the relationship between relational risk perception and contractual enforcement. In addition, Sheng, et al. [52] mentioned that contractual enforcement is part of the contract governance mechanism, the aim of which is to curb transaction risks, but existing studies on contractual enforcement have rarely focused on the relationship between risk perception and contractual enforcement. This study complements the previous literature.

Further, Lui and Ngo [53] have found that satisfying experiences of cooperation from the past could reduce the buyer's perceived risks and are one of the determinants of the buyer's long-term relationship orientation. This finding is also supported by many subsequent studies, such as Wang, et al. [54], Lee, et al. [55] and Johnsen, et al. [56], which have found that the trust developed in prior exchanges increases the intention to cooperate in the long term by relieving parties' concerns on opportunism. This study, on the one hand, supports their results—that perceived risks in the current project lead to a reduction in future exchanges between the two parties; on the other hand, complements them that the reduction in future long-term relationships is not only reflected between the two parties but may be reflected at a higher level and among members within the industry.

## **CONCLUSIONS**

This study empirically examined the effects of the type of contract violation on contractual enforcement and reputational enforcement and the mediating role of risk perception in the above effects. Using data collected from Chinese general contractors, this study finds that compared with violations of unilaterally assumed obligations, violations of documented obligations and violations of tacitly agreed obligations will lead to more severe contractual enforcement and reputational enforcement while the latter two cause no significant difference in the severity of enforcement. Furthermore, the mediating effects of relational risk perception are supported.

The following theoretical advancements are made by this study. Firstly, this study contributes to the literature on contractual governance by exploring the effects of contract structure on problem-solving in inter-organizational exchanges and construction projects. The

previous interfirm contracting studies have mainly focused on the complexity or detail of written contracts. Accordingly, these studies have mainly been engaged in the violations of obligations in written contracts [57, 58] and the sequent responses to them [59]. In contrast, this study complements the studies by taking account of the undocumented elements of construction contracts and examining the impacts of violations of them on enforcement.

Second, this study responds to the recent calls for the role of contract ambiguity and contributes to resolving the contradiction of the effects of contract details and contract ambiguity. Although most contracting studies have emphasized the importance of designing a more detailed and complete contract in promoting participants' cooperation and enhancing project performance, some studies in recent years have drawn insights from the law literature and had some kind of counter-intuitive findings that contract ambiguity and blurring contract expectations. This study provides a new perspective on the significance of the above insights, that is, violations of the types of expectations (letter or spirit) influence the relational risk perception and enforcement. Further, this study helps to balance between more detailed contracts and more ambiguous contracts by emphasizing the importance of mutuality of contract violation.

Last, this study fills the gaps in the scarce literature on reputational enforcement and expands the studies on the antecedents of reputational enforcement. Contractual and legal enforcement is one aspect of enforcement practices. Due to its high costs and negative effects on the smooth progress of projects, the violated party may adopt its alternative mechanism—reputational enforcement. Although a small portion of studies has focused on reputational enforcement, they have been conducted in the marketing field or labor market while few studies

have explored it in the construction industry. Besides, most of them have focused on the role of reputational enforcement in preventing violations and safeguarding against opportunism but ignored how this kind of enforcement is triggered after an actual violation.

This study provides some practical insights as well. Contract violations have been recognized to be one of the most significant causes of construction project disputes. Dealing with them properly is of practical relevance in the construction industry. This study points out that not only letter violations but spirit violations also lead to enforcement although different types lead to variations in enforcement decisions. Project managers can benefit from this study by acknowledging the alignment between types of violations and enforcement. Besides, this study suggests that enforcement is not just related to the legal aspect but includes reputational sanctions in the construction industry. Project managers need to note the differences between the two types of enforcement and select the appropriate enforcement mechanisms. Last, this study finds the significant impacts of relational risk perception on enforcement, which help project managers understand the nuanced process of the decisions of employing enforcement.

This study has some limitations that imply future research directions. First, this study only focus on the mediating mechanism of the link between contract violations and enforcement while future studies could explore the moderating conditions of the link, such as institutional environment and market competition intensity. Second, this study is only focused on the relationship between the general contractor and subcontractors. There are various relationships in a construction project, such as owner-contractor relationships, owner-engineer relationships, owner-supplier relationships, etc.,. Future studies could explore the antecedents of enforcement in other relationships. Third, documentation and mutuality are the only two dimensions of



contract violations. The scholars could differentiate violations based on other dimensions, such as timing and severity of violations, in the studies in the future.

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