



To insist or to concede? Contractors' behavioural strategies when handling disputed claims

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To insist or to concede? Contractors' behavioural strategies when handling disputed claims

Purpose – The purpose is to identify and analyse factors that affect contractors' behavioural strategies in resolving disputed claims.

Design/methodology/approach – Factors were explored by a literature review and an open-ended questionnaire survey. Nine hypotheses involving twelve factors were developed accordingly. Then a structured questionnaire survey was conducted, and 248 valid questionnaires were received from Chinese contractors. Partial least squares structural equation modelling was employed to test the hypotheses.

Findings – Factors that have the largest impacts on the contractual approach, the relational approach regarding obliging and compromising are favorability of evidence, time pressure and reputation, respectively. Unexpected results show that obliging behaviours are negatively correlated with procedural fairness but positively correlated with occurrence time of the dispute.

Research limitations/implications – The results are based on correlation, although the research design improves the internal validity. Furthermore, this study belongs to single-level research. In the future, researchers can conduct multilevel research to enrich theories.

Practical implications – The findings not only enhance practitioners' understanding of the factors influencing contractors' behavioural strategies when dealing with disputed claims, but also offer insights into both parties' ex-ante focus of attention on specific factors to facilitate the subsequent dispute resolution.

Originality/value – This study furnishes a nuanced picture of multiple factors' impacts on contractors' behavioural strategies of claim-related dispute resolution, and thus supplements the relevant construction dispute management literature. From the perspective of contractual governance, it is one of those exploring drivers of contract application in problem situations. It extends the body of knowledge on this topic and hopefully will encourage more research on contractual governance from the reactive perspective.

Keywords Disputed claims, Construction projects, Contractual approach, Relational approach

Introduction

Claim-related disputes occur when contractors do not accept owners' decisions about claims (Kumaraswamy, 1997). Reasons accounting for disputes include inconsistent viewpoints on rights and responsibilities, incomplete contracts, opportunistic behaviours, etc. (Cheung and Pang, 2013; Awwad *et al.*, 2016). The increasing complexity and uncertainty of construction projects are accompanied by a growth in the number of disputes (Haugen and Singh, 2015). In a construction

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3 project observed by the authors, a Chinese international contractor negotiated with an owner about a
4 large claim amount due but failed to get an approval. The claim was valid under the contract and
5 would have been awarded at arbitration or litigation. However, the contractor chose to give up
6 mainly because it wished to undertake more projects from this owner in the future. This case
7 motivates the authors' probe into contractors' behavioural strategies when handling disputed claims,
8 i.e. to insist or to concede?
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13 This paper is structured as follows. First, the authors introduce the theoretical background for
14 the study. Knowledge gaps are summarised from two relevant theoretical perspectives, and the
15 research aim is accordingly proposed. Next, research methodology is elaborated to achieve the aim.
16 This is followed by the identification of factors influencing contractors' behavioural strategies of
17 claim-related dispute resolution and the information about the open-ended questionnaire survey.
18 Nine hypotheses involving twelve factors are developed. The authors then describe the structured
19 questionnaire survey and present the results of data analyses. After the data analyses, the findings
20 are discussed. Finally, the authors conclude with theoretical and practical contributions, limitations,
21 and opportunities for future research.
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28 **Theoretical Background**

29 Contractors' behavioural strategies are defined as their planned actions based on goals during the
30 process of claim-related dispute resolution. Behavioural strategies of dispute resolution are
31 classified into a contractual approach and a relational approach (Wang *et al.*, 2016). The contractual
32 approach pertains to heavy reliance upon contracts to claim rights and unilaterally enforce position
33 (Gilliland and Bello, 2002; Wang *et al.*, 2016). Contractors adopting it argue their demands as
34 legitimate to maximise their benefits while portraying owners' position is not supported by
35 contracts (Lumineau and Malhotra, 2011). The relational approach is defined as ignorance of
36 contract contents and reliance on cooperative behaviours in the form of adjusting to the other party'
37 position or finding a mutually acceptable solution (Gilliland and Bello, 2002; Wang *et al.*, 2016).
38 Contractors adopting it set aside the right and make concessions. The degree of concessions varies
39 from obliging (satisfying the other party's concern) to compromising (give-and-take to achieve a
40 mutually acceptable settlement) (Rahim, 2002). These two approaches show contractors' rigid and
41 flexible contract application to solve problems, respectively.
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51 Among construction dispute resolution research, one stream lies in the evaluation and selection
52 of different resolution methods such as negotiation, mediation, dispute adjudication boards (DABs),
53 arbitration, and litigation (e.g., Chan *et al.*, 2006; Gad *et al.*, 2011; Marzouk *et al.*, 2011; Chong and
54 Zin, 2012; Lee *et al.*, 2018). However, a dispute resolution method may reflect contractors'
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3 different intentions and purposes. For example, contractors may either compete or cooperate during
4 negotiation; arbitration may act as a tool to press for owners' concessions or only a tactic to frighten
5 owners. In contrast, driven by intentions and goals, behavioural strategies can indicate contractors'
6 choices of methods. For instance, the contractual approach implies that contractors will behave
7 competitively during negotiation. If negotiations fail, they tend to refer disputes to the DAB or even
8 arbitration. Behavioural strategies, therefore, are the core construct in this study.

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13 A few studies investigated the impacts of some factors on parties' behaviours (Yiu *et al.*, 2011;
14 Zhang *et al.*, 2016b; Lu *et al.*, 2017). Nevertheless, their contexts are specific to negotiations.
15 Dispute resolution typically comprises several methods in sequential order. In addition to
16 contending bargaining behaviours, referring disputes to arbitration to strive for benefits also
17 represents rigid contract application in dispute situations. Thus, this study puts focus on the whole
18 dispute resolution process. Additionally, Chan *et al.* (2010) looked beyond the scope of negotiation
19 and revealed some drivers of investors' strategies, ranging from relational bargaining to legal
20 approach. However, their context is limited to investors' responses to government-initiated
21 concession renegotiations in public-private partnership projects. Hence, there is a paucity of studies
22 identifying factors that affect contractors' behavioural strategies of claim-related dispute resolution.

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Contractors' behavioural strategies of dispute resolution embody the degree of their contract
application in problem situations, which is a sub-topic of contractual governance. Most contractual
governance literature in the construction industry has taken a proactive perspective and focused on
the impact of contract design in avoiding problems, including deterring opportunism, promoting
cooperation or enhancing performance (e.g., Fu *et al.*, 2015; Lu, P. *et al.*, 2015; Lu *et al.*, 2016;
Zhang *et al.*, 2016a; Quanji *et al.*, 2017; Wu *et al.*, 2018). In comparison, the reactive perspective,
i.e. the role of contracts when problems occur, has received less attention. Falling into this reactive
stream, Chen *et al.* (2018) put their attention on how prior ties affect parties' severity of contract
enforcement after contract breaches. Current literature has yet to identify the drivers of contract
application in dealing with disputed claims.

The aforementioned two gaps are closely related to each other and come from two theoretical
perspectives – dispute management and contractual governance, respectively. In order to address
the gaps, this study aims to identify and analyse factors influencing contractors' behavioural
strategies when handling disputed claims. The level of analysis is at the organisational level. This
study is expected to make contributions to both theoretical points of departure, which will be
thoroughly discussed in the conclusion section.

Research Methodology

Research Design, Sampling and Data Collection Procedures

Since current literature reveals possible influencing factors, the authors carried out a literature review to explore a preliminary factor list. Hypotheses were developed accordingly. Then the authors conducted an open-ended questionnaire survey to obtain the degree of impact of these factors and add new factors. Finally, a structured questionnaire survey was carried out to collect quantitative data and test the hypotheses. Chinese contractors were chosen as the target sample because China has played a significant role in the international construction contracting market and will remain active in the market. China owns the largest number (65) of construction contractors in the 2016 Engineering News-Record Top 250 International Contractors list (2016 ENR list for short). The 'Belt and Road' Initiative contributes to the further development of Chinese contractors' overseas business. The criteria for potential respondents in the open-ended (structured) questionnaire survey are practitioners who 1) come from the top 10 (all the 65) Chinese companies in the 2016 ENR list; 2) have settled no less than two (at least one) claim-related dispute(s); and 3) master detailed information regarding both the dispute and the project.

Potential respondents were reached by LinkedIn (since it provides a contact platform and shows practitioners' resumés indicating if they are suitable) or an alumni group of a graduate program on construction management at a famous Chinese university (since some alumni perfectly meet the criteria). Internet-based surveys were used as this mode is beneficial for researchers and respondents, e.g., cost and time saving, easy answer and return (Bryman, 2012).

Data Analysis Method and Power Analysis

Partial least squares structural equation modelling (PLS-SEM) was adopted to analyse data. As summarised by Hair Jr *et al.* (2017), PLS-SEM can deal with more than one dependent variable simultaneously and makes no assumptions about data distribution. It estimates parameters by maximising endogenous latent variables' explained variance and is more suitable for research explaining constructs. A power analysis was conducted to calculate the minimum sample size (Cohen, 1992; Hair Jr *et al.*, 2017), which equals 171 (the significance level = 0.10, the statistical power = 0.80, the population effect size = medium, and the number of independent variables = 12).

Open-ended Questionnaire Survey and Hypotheses Development

Factors Identified from the Literature and Hypotheses Development

Ten possible factors were identified from the literature (see Table 1). Hypotheses were developed as follows.

(1) The disputed amount. When the disputed amount is small compared with the total contract amount, concessions are acceptable since the losses are small. The burden of proof is on

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3 contractors, who have to spend time and costs in identifying, retrieving and archiving related
4 information, interpreting contracts, and justifying claims (Vidogah and Ndekugri, 1997). Due to
5 expenditures of resources, it is unworthy to enforce their position. Hence, they are likely to choose
6 the relational approach. By contrast, high amounts in controversy merit more strident strategies than
7 low amounts (Hoogenboom and Dale, 2005). Compromises on large amounts may damage the
8 profitability of projects. Thus, contractors are motivated to take the contractual approach to protect
9 interests and avoid massive losses.

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11 Contractors need owners' support in many aspects to complete projects successfully. Fighting
12 over the smallest trifles may bring about owners' antipathy, which negatively affects the
13 relationship. In response to contractors' hostile actions, owners may deliberately provide less
14 support and take stricter monitoring and inspecting procedures. Therefore, small compensations are
15 undeserving of the contractual approach. Instead, contractors prefer the relational approach, which
16 shows cooperation and helps to preserve an amicable relationship (Gilliland and Bello, 2002; Wang
17 *et al.*, 2016). However, the significance of large disputed amounts is self-evident. Heavy reliance on
18 contracts to insist rights is essential for contractors and emotionally acceptable for owners. Thus,

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20 *H1: The disputed amount is positively correlated with the contractual approach and negatively*
21 *correlated with the relational approach.*

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23 **(2) Procedural fairness.** People's behaviours are susceptible to their fairness perception about
24 procedures used to make decisions (Thibaut and Walker, 1975). Contractors may perceive
25 unfairness due to owners' unreasonable disapproval, delayed response, etc. They may attribute
26 negative motivations to owners' actions and lose confidence in cooperation. Hence, contractors
27 attach more importance to individual interests and strive to secure favourable economic outcomes
28 (Aibinu *et al.*, 2008). Moreover, based on equity theory (Adams, 1965), contractors are motivated
29 to retaliate and change the unfair status quo. They prefer to cover the losses caused by unfairness
30 through the contractual approach.

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32 In comparison, procedural justice stimulates a party's relational behaviours as a return for the
33 other party's fair administration (Griffith *et al.*, 2006). In the work setting, employees' procedural
34 fairness perception predicts their extra-role behaviours (Tyler and Blader, 2000). Likewise,
35 contractors who perceive fair procedures may engage in behaviours that are outside of the contract
36 scope and making concessions. Additionally, many studies have consistently found that people are
37 more likely to defer to others' decisions, which are reached via a fair procedure (e.g., Aibinu *et al.*,
38 2008; Hollander-Blumoff and Tyler, 2008; Murphy and Tyler, 2008). Compliance behaviours are
39 stimulated by procedural fairness, irrespective of whether or not compliance brings losses. Thus,

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3 *H2: Procedural fairness is negatively correlated with the contractual approach and positively*
4 *correlated with the relational approach.*

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6 **(3) Time pressure.** Contractors perceive time pressure when deadlines are short or
7 time-related expenditures during dispute resolution process are high (Magenau and Pinto, 2004).
8 Owners may put time pressure on contractors by wielding their power to set a limit on how long an
9 agreement should be reached. Without clear deadlines, contractors may also suffer financial losses
10 if the process lasts long. They cannot receive compensations without agreements, which is
11 detrimental to cash flow (Tran and Carmichael, 2013). They have to expedite progress since they
12 are not aware of how many extensions of time will be granted. Claim personnel may spend
13 substantial efforts handling claims, which causes overburdening and prevents them from
14 performing their duties effectively (Gebken II, 2006; Lu and Liu, 2014).
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18 The contractual approach means that contractors insist their own demands to maximise
19 benefits (Lumineau and Malhotra, 2011). It is likely to produce divergences and increase the
20 duration of the resolution process. For instance, dominating behaviours are likely to result in
21 negotiation deadlock (Cheung *et al.*, 2006; Lu, W. *et al.*, 2015b); referring disputes to arbitration
22 has to undergo a long duration before a ruling is provided (Haugen and Singh, 2015). By contrast,
23 concession making contributes to quick agreements (Magenau and Pinto, 2004). Parties under high
24 time pressure tend to cooperate and concede (Stuhlmacher *et al.*, 1998). Conversely, there is no
25 need to give way when contractors face low or no time pressure. They could utilise the contractual
26 approach to press for owners' concessions. Thus,
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30 *H3: Time pressure is negatively correlated with the contractual approach and positively*
31 *correlated with the relational approach.*
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34 **(4) Favourability of evidence.** In order to receive owners' approval or win favourable
35 outcomes if third parties are involved, contractors should demonstrate that their claims are
36 legitimate. However, sometimes it is hard to obtain adequate proof because of poor documentation
37 management (Hassanein and El Nemr, 2008). Additionally, contracts are inevitably incomplete due
38 to bounded rationality (Simon, 1996) or parties' deliberate choices (Chang and Ive, 2007; Duan,
39 2012). Deficient, ambiguous or inconsistent contract terms may entail controversies regarding the
40 entitlement of claims. Failure to comply with related terms (e.g., the condition precedent) also
41 brings difficulty for justifying claims.
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44 People in conflict often interpret events egoistically (Bazerman and Moore, 2008). Contractors
45 can rely on favourable evidence to impose sanctions on owners, and the probability of obtaining
46 what they deserve is high. Hence, the strong evidence provides an incentive for contractors to
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3 defend their position and emphasise compensations (Lumineau and Malhotra, 2011; Lumineau and
4 Henderson, 2012). In contrast, weak evidence reduces contractors' bargaining power and ability in
5 achieving desired outcomes (Lu and Liu, 2014). It is hard to affect owners' decisions in a way that
6 benefits contractors. Situations may get worse if third parties are involved since contractors have to
7 face a poor outcome and meanwhile bear the related costs. Therefore, when the evidence is
8 unfavourable, they have nothing to do but cater to owners' viewpoints. Thus,

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13 *H4: Favourability of evidence is positively correlated with the contractual approach and*
14 *negatively correlated with obliging behaviours.*

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16 **(5) Trust.** According to social exchange theory (Blau, 1964), individuals take voluntary
17 actions because they expect returns from others. Such a social exchange involves unspecified future
18 obligations and requires trust. It usually starts with a small exchange, which needs only little trust
19 and involves little risk. Trust will increase if others do reciprocate, and will further develop along
20 with recurrent social exchange over time. Anyone who fails to discharge obligations will be
21 punished by social sanctions, e.g., distrust and no favour.

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26 Trust means that contractors hold positive expectations regarding owners' intentions
27 (Rousseau *et al.*, 1998). They believe that owners will not engage in opportunistic behaviours even
28 in the face of incentives and opportunities (Woolthuis *et al.*, 2005; Gulati and Sytch, 2008). In
29 contractors' viewpoint, owners have reasons, e.g., financial pressure, for decisions. Hence, based on
30 social exchange theory (Blau, 1964), contractors are likely to do owners a favour and expect the
31 favour will be reciprocated in the long run. Although expected reciprocity may not achieve, they are
32 willing to make sacrifices and accept vulnerability. In this regard, contractors tend to adjust
33 themselves to owners' position. Nevertheless, if distrust exists, contractors often hold negative
34 expectations toward owners' motives (Vlaar *et al.*, 2007). Owners' actions are interpreted
35 negatively in the way that they deliberately refuse to approve claims. Contractors are afraid of being
36 vulnerable to exploitation, and thus take strict measures to protect interests (Lu, W. *et al.*, 2015a).
37 Thus,

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46 *H5: Trust is negatively correlated with the contractual approach and positively correlated*
47 *with obliging behaviours.*

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50 **(6) Shadow of the future.** Future consequences caused by current actions will influence a
51 party's current strategy (Chan *et al.*, 2010). It is manifested in four aspects: occurrence time of the
52 dispute, other ongoing project(s), future cooperation and reputation. First, processes of
53 disagreement resolution will influence parties' ability to work together day to day (Mitropoulos and
54 Howell, 2001). Contractors' tough actions during the dispute resolution may bring barriers to
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3 smooth project implementation. The severity of consequence is intensified when disputes happen in
4 the early phase or when the parties have other ongoing project(s). Second, behavioural strategies
5 constitute a signal about whether contractors are easy-going and flexible. It affects owners'
6 confidence in work with contractors and further influences the possibility of future cooperation.
7 This consequence is severe for contractors who expect future cooperation with the same owner.
8 Third, contractors have high concern for reputation when their behaviours in one project are readily
9 accessible to outsiders. Aggressive actions in problem situations may be spread. If rigidity brings
10 claims to arbitration or litigation, contractors will be shaped into dispute-prone organisations. They
11 have to lower the bidding price or make other sacrifices to win a project due to their damaged
12 reputation (Lu, W. *et al.*, 2015a).

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14 Under the shadow of the future, contractors have to pay attention to their behavioural strategies.
15 The contractual approach is competitive and adversarial (Lumineau and Malhotra, 2011). It may
16 negatively affect the relationship and result in detrimental results, e.g., lack of owners' support,
17 stricter monitoring and inspection, no future cooperation, and reputation damage. In order to
18 prohibit those consequences, the shadow of the future directs behaviours towards cooperation and
19 the relational approach. Nevertheless, those consequences are not severe for contractors under a
20 weak shadow of the future. Without fear of future losses, contractors are more likely to attach
21 importance to immediate gains and take the contractual approach. Thus,

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23 *H6: Shadow of the future (occurrence time of the dispute, other ongoing project(s), future*
24 *cooperation and reputation) is negatively correlated with the contractual approach and positively*
25 *correlated with the relational approach.*

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27 **(7) Lock-in asymmetry.** Lock-in means the degree of losses in terms of time and money
28 caused by replacing partners or withdrawing midway (Chang and Ive, 2007; Zhang *et al.*, 2016b).
29 As explained by Chang and Ive (2007), terminating and leaving a project part-finished may result in
30 enormous losses for owners since specialised assets could be hardly used in other alternatives. If
31 replacing contractors, owners have to bear searching costs and time losses to find a replacement
32 contractor. The impact of project disruption also incurs losses. Contractors may make significant
33 investments in specialised machinery and equipment. The redeployment of material and human
34 assets to alternative uses brings losses if they withdraw midway.

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36 Lock-in effects bring hold-up problems (Chang and Ive, 2007). If an owner's lock-in is higher
37 than a contractor's, the contractor holds more power. The owner could not easily end the
38 relationship in dispute situations due to enormous losses, but the contractor could. This
39 vulnerability is likely to stimulate the contractor's contractual approach. Contrarily, the power

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3 advantage is owned by the owner. The contractor is worried about the owner's negative response to
4 its competitive approach and thus prefers a relational way. Drawing on interdependence asymmetry
5 (Gundlach and Cadotte, 1994), lock-in asymmetry is the owner's lock-in minus the contractor's
6 lock-in. Thus,
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10 *H7: Lock-in asymmetry is positively correlated with the contractual approach and negatively*
11 *correlated with the relational approach.*
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13 **Questionnaire Design, Data Collection and Refined Factors**

14 The first section includes years of working experience in construction project management,
15 professional qualification, and the number of claim-related disputes that the respondent has settled.
16 Then the meanings of factors and behavioural strategies were provided. Respondents were required
17 to assess the degree of impact of these factors on their parties' behavioural strategies according to
18 their experience, on the basis of a 7-point scale (1-very small; 2-small; 3-slightly small; 4-medium;
19 5-slightly large; 6-large; 7-very large). An open question was designed to add new factors. The
20 following was included in both the open-ended questionnaire and the structured questionnaire to
21 increase the response rate: potential benefits of the survey, importance of respondents' answers,
22 availability of results upon request, time for completing the questionnaire, sponsorship information,
23 confidentiality guarantee, and our email address (Dillman *et al.*, 2014). The authors first developed
24 the questionnaire in English and then translated it into Chinese. A back-translation procedure and a
25 pilot study were conducted to refine the questionnaire. 32 questionnaires were sent out by LinkedIn,
26 and 12 valid questionnaires were received (9 from contract administrators, 1 from a project manager,
27 and 2 from cost administrators). The average number of years of working experience is around 13.6,
28 and the average number of disputes that they have resolved is 11. Hence, they can add general
29 factors by comparing cases.
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41 The authors calculated the mean (M) and standard deviation (SD) of each factor. The degree of
42 impact of favourability of evidence (M = 6.08; SD = 0.79), reputation (M = 5.67; SD = 1.56) and
43 time pressure (M = 5.42; SD = 0.90) ranks first, second and third, respectively. New factors were
44 added. The first one is "the cost of pursuing the disputed claim", i.e. contractors' viewpoint about
45 the cost of pursuing the disputed amount compared with the disputed amount. Claim procedures
46 could be strict and onerous. Contractors may increase contract administrators and even hire
47 consultants from professional companies to justify their rights. Arbitration and litigation also
48 involve high costs (Haugen and Singh, 2015). If contractors think the cost is very high and even
49 outweigh the disputed amount, they would rather satisfy owners' desires. Obliging behaviours also
50 do owners a favour, which improves the relationship and may be returned in the future. By contrast,
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3 if the expenditure is relatively low, contractors' efforts will not be wasted. They are likely to insist
4 on their position and adopt a contractual approach. The supposed relationship is given in the form
5 of hypothesis: *H8: The cost of pursuing the disputed claim is negatively correlated with the*
6 *contractual approach and positively correlated with obliging behaviours.*
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10 The second factor is "cash flow status", i.e. contractors' cash flow status before the dispute
11 happened. Effective cash management is critical to support daily project activities. Contractors in a
12 poor cash position are "hungry" and in desperate need of money. Giving up pursuing rights
13 undoubtedly worsens the grave financial situation, and thus obliging is suppressed. The contractual
14 approach may alleviate the financial problem but at a risk of an impasse. Contractors may not
15 obtain compensations timely, which is unacceptable for those with bad cash flow. Besides, they are
16 not financially capable of withstanding the related costs. Hence, the degree of using the contractual
17 approach seems to be higher for contractors with good cash flow than those with poor cash flow.
18 Compromising behaviours not only help to recover losses but also achieve a settlement quickly. The
19 degree of adopting compromising behaviours seems to be higher for contractors with poor cash
20 flow than those with good cash flow. Thus, *H9: Contractors' poor cash flow is negatively*
21 *correlated with the contractual approach and obliging behaviours, and positively correlated with*
22 *compromising behaviours.*
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31 One respondent added a third factor - the host country of a project, which was excluded
32 because it is not at the organisational level. It should be noted that this study relies on nomothetic
33 explanation, with the aim of identifying several causes that generally work in many projects rather
34 than complete causes that work in a single project (Babbie, 2011).
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38 **Structured Questionnaire Survey and Data Analyses**

39 ***Measures of Variables, Questionnaire Design and Data Collection***

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41 All the measures were developed based on previous studies (see Table 2). On the premise of not
42 violating the original meanings, minor modifications were made to suit the research context.
43 Respondents were asked to recall a claim-related dispute that they recently settled on behalf of the
44 contractor and this dispute's related project information to answer this questionnaire. The first
45 section covers years of working experience in construction project management, professional
46 qualification, enterprise types of the contractor and the owner, whether the two parties are from the
47 same country, project type, contract type, and project location. The drivers and behavioural
48 strategies were measured in the following two sections. The disputed amount and the cost of
49 pursuing the disputed claim were measured by a 7-point scale (1-very low; 2-low; 3-slightly low;
50 4-medium; 5-slightly high; 6-high; 7-very high). Occurrence time of the dispute was chosen from
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3 five options (less than 20%, 20-40%, 41-60%, 61-80%, or more than 80%), and other ongoing
4 project(s) from two options (yes or no). Other drivers and behavioural strategies were assessed on a
5 7-point Likert scale (1-strongly disagree; 2-disagree; 3-slightly disagree; 4-neutral; 5-slight agree;
6 6-agree; 7-strongly agree). A back-translation procedure and a pilot study were also conducted. Due
7 to the length limitation, the survey scales are available upon request.
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11 The authors sent out 834 questionnaires by LinkedIn and 11 by the alumni group and received
12 248 valid questionnaires. The effective response rate is 29.3%. Table 3 provides the sample
13 characteristics. 73.4% of the valid questionnaires are based on projects outside China. The global
14 distribution of project locations enhances the external validity of this study.
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18 ***Common Method Variance and Descriptive Statistics***

19 The authors took remedies to mitigate common method variance (CMV) (Podsakoff *et al.*, 2003).
20 Answers were anonymous, and respondents were told that there are no right or wrong answers. The
21 items were improved by pilot studies, and the labels for the midpoints of scales were provided. The
22 result of Harman's single-factor test showed that more than one factor was extracted, and the first
23 factor only explained 15.711% of the total variance. Therefore, CMV is not of concern. The
24 descriptive statistics are given in Table S1 in the supplemental data. The largest correlation
25 coefficient is 0.486, which means that correlations among the independent variables are fairly
26 modest and not excessive. In order to further assess potential collinearity problems, variance
27 inflation factors (VIFs) were examined. The largest VIF value is 1.474, which is much smaller than
28 the threshold of 5 (Hair Jr *et al.*, 2011). Hence, there is no collinearity problem.
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36 ***Algorithm Settings and Evaluation of Measurement Models***

37 SmartPLS was applied to analyse the data. Four settings were "Path Weighting", +1 as the initial
38 values for outer weights and loadings, 10^{-7} as the stop criterion, and 300 as the maximum number of
39 iterations (Hair Jr *et al.*, 2017). The number of iterations was 15, so the results stabilised. The
40 authors evaluated the reliability and validity of reflective multiple-indicator measures (see results in
41 Tables S2-S7 in the supplemental data). First, all values of Cronbach's alpha and composite
42 reliability exceed 0.60 (Hair Jr *et al.*, 2017), and thus the internal consistency reliability is good.
43 Second, all outer loadings and AVE values are above 0.4 and 0.5, respectively (Hair Jr *et al.*, 2017).
44 The convergent validity is satisfactory. Third, all indicators' outer loadings on their associated
45 constructs are greater than their cross-loadings. The square root of any reflective construct's AVE
46 value is greater than its highest correlation with other constructs. The HTMT values are lower than
47 the threshold value of 0.9, and all confidence intervals do not include 1 (Hair Jr *et al.*, 2017). The
48 discriminant validity is good.
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Evaluation of the Structural Model

Four settings for the bootstrapping procedure were 5000 bootstrap samples, “No Sign Changes”, “Bias-Corrected and Accelerated (BCa) Bootstrap”, and “Two-Tailed”. Figure 1 shows the significant relationships (also see Table S8 in the supplemental data). The disputed amount is positively correlated with the contractual approach and negatively correlated with the relational approach, supporting H1. Procedural fairness is negatively correlated with obliging behaviours, rejecting H2. Time pressure is positively correlated with the relational approach, partially supporting H3. Favourability of evidence is positively correlated with the contractual approach and negatively correlated with obliging behaviours, supporting H4. Consistent with H5, trust is negatively correlated with the contractual approach and positively correlated with obliging behaviours. Occurrence time of the dispute and future cooperation are positively correlated with obliging behaviours. Other ongoing project(s), future cooperation and reputation are positively correlated with compromising behaviours. H6 is partially supported. The impact of lock-in asymmetry is not significant, repudiating H7. The cost of pursuing the disputed claim is negatively correlated with the contractual approach and positively correlated with obliging behaviours, supporting H8. Contractors’ poor cash flow is negatively correlated with obliging behaviours, partially supporting H9. The R^2 values of the contractual approach, obliging and compromising behaviours are 0.159, 0.229 and 0.235, respectively.

Discussions

Unexpected Findings – How do Procedural Fairness and Occurrence Time of the Dispute Play a Role?

Procedural fairness is negatively correlated with obliging behaviours. It seems to contradict the wisdom that procedural fairness leads to compliance behaviours, which is based on Tyler’s (1990) procedural justice model and has been supported in different contexts (e.g., Aibinu *et al.*, 2008; Reisig *et al.*, 2014). However, in this study, disputes appear when contractors reject owners’ decisions on claims. It is a precondition that does not exist in those studies. In fact, Tyler’s (1990) theory holds a less calculative perspective on people’s reactions. If authorities wield authority fairly, people will perceive authorities’ legitimacy and further choose compliance. An alternative perspective is calculative, i.e. people’s behaviours are influenced by anticipation of reward or fear of punishment (Tyler, 2006). Contractors who engage in disputes usually attach great importance to instrumental concerns. Fair procedures reflect that owners stick to contract principles, which increases the likelihood of obtaining compensations due. The dominant instrumental motivation may account for this finding. This explanation is consistent with the argument that procedural

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3 fairness may affect behaviours through the non-instrumental channel and instrumental channel
4 (Dickson *et al.*, 2014). It should be stressed that this finding does not mean that owners had better
5 adopt unfair procedures. Contractors who receive unfavourable decisions on claims are more likely
6 to engage in disputes if they perceive unfair procedures (Aibinu *et al.*, 2008). Therefore, fair
7 procedures are conducive to preventing disputes. If disputes occur, unfair treatment may help
8 owners to grasp unbalanced benefits temporarily. However, contractors choose obliging since
9 owners' oppression makes them hopeless. Such opportunistic behaviours will weaken contractors'
10 willingness of cooperation and commitment (Luo, 2006; Wang and Yang, 2013). Moreover,
11 information advantages usually lie with contractors (Fu *et al.*, 2015). They may take advantage of
12 information asymmetry to recover losses (shirk responsibilities, cut corners, etc.). Eventually,
13 project performance will be negatively affected. Thus, owners are sensible to handle claims in a fair
14 way and do not make situations worse for all involved.

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23 Another unexpected result is that the later a dispute occurs, the more likely contractors are to
24 take obliging behaviours. It implies that there are other mechanisms, exerting stronger and opposite
25 effects. One explanation is that contractors are unwilling to be seen as soft in the early stage. If they
26 do not actively defend their rights from the very beginning, owners may take advantage of such
27 weakness. It will be very tough for contractors to pursue rights later. This explanation is similar to
28 the anchoring effect of initial offers in negotiations, i.e. the toughness of a party's initial offer
29 predicts a better outcome (Van Poucke and Buelens, 2002). Contractors' obliging behaviours in the
30 early stage may be a reference point for owners to make the following judgments and decisions.
31 Another possibility is that owners also have the shadow of the future. They usually suffer from a
32 heavy pressure of construction progress in the early phase and thus hold a positive attitude towards
33 problem-solving. They are afraid that if claims are not solved successfully, contractors may work
34 passively. Contractors who realise this are unlikely to take obliging behaviours. In contrast, owners'
35 concern is little in the late phase, especially after taking over projects. The decreasing reliance
36 brings difficulty for contractors to pursue disputed entitlements, which increases obliging
37 behaviours. This explanation echoes Chan's (2010) observation that the host government will be
38 less dependent on the investor when the project passes from construction to operation, and the
39 investor will be in a weak position.

50 51 ***Which Drivers Exert the Largest Impact on Behavioural Strategies?***

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53 The values of path coefficients show the degree of impact. Favourability of evidence has the largest
54 influence on the contractual approach and is negatively correlated with obliging behaviours. The
55 finding is in line with Lu and Liu (2014), who found that sufficiency of evidence contributes to
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3 contractors' bargaining power in construction dispute negotiations. Thus, contractors are advised to
4 improve the favourability of evidence. Ambiguous or inconsistent contract provisions should be
5 avoided when negotiating the contract. During contract execution, an experienced contractor not
6 only has good knowledge of evidence sources but also keeps contemporary records in a focused
7 manner. Supporting particulars should be well preserved and not subject to unexpected events (e.g.,
8 the turnover of key people on site, an unexpected deadline for submission required by owners).
9 Moreover, procedural requirements under contracts should be met to avoid losing entitlements.
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14 As for obliging behaviours, time pressure is the most important driver. The result is consistent
15 with previous studies (Stuhlmacher *et al.*, 1998; Lu and Liu 2014). Contractors should be aware of
16 potential consequences caused by long resolution process. It is advisable to avoid suffering from
17 time pressure. If compromising brings quick resolution and the losses are acceptable, contractors
18 are supposed to do so. The longer the dispute resolution process lasts, the weaker their bargaining
19 position will be. Regarding compromising behaviours, reputation plays the most important role, and
20 future cooperation ranks second. Other ongoing project(s) also has an effect. These three bring the
21 shadow of the future. Previous studies have supported a similar impact (Marzouk and Moamen,
22 2009; Chan *et al.*, 2010; Zhang *et al.*, 2016b). The noteworthy point is that future cooperation is
23 positively correlated with not only compromising but also obliging behaviours, which echoes the
24 case in the introduction. The effect of other ongoing project(s) implies that an owner is suggested to
25 cooperate with the contractor, who is undertaking a project of the owner, on other projects, if the
26 contractor is suitable and the current interaction is positive.
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36 Trust has the second largest impact on the contractual approach and the third largest impact on
37 obliging behaviours. Similarly, Faems *et al.* (2008) showed that trust stimulates flexible contract
38 application while distrust fosters rigidity in exploratory R&D alliances. Zhang *et al.* (2016b) found
39 that trust is positively correlated with the interest-based behavioural strategy in construction
40 subcontracting dispute negotiations. Thus, owners are encouraged to develop trust from the very
41 beginning. However, they should not utilise trust. When a party takes advantage of the other party,
42 its behaviours are perceived as slightly negative if the other party distrusts it but very negative if the
43 other party trusts it (Weber, 2017). Indeed, owners' opportunistic behaviours will break contractors'
44 positive expectation and be viewed as betrayal and exploitation. Trust will break down since then.
45 Aggrieved contractors are likely to retaliate with tough responses in the future. If owners are in a
46 difficult position, a sensible solution is to explain problems honestly and compensate contractors in
47 other ways. A party's trust will increase if the other party pays back for favours in the future,
48 otherwise will be violated (Blau, 1964).
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Conclusion

This study identifies eleven factors that significantly affect contractors' behavioural strategies when dealing with disputed claims. A high disputed amount, high favourability of evidence, low trust and low cost of pursuing the disputed claim are causes of contractors' contractual approach. High time pressure, high trust, late occurrence time of the dispute, high expectation about future cooperation, high cost of pursuing the disputed claim, low disputed amount, procedural unfairness, low favourability of evidence and contractors' good cash flow account for contractors' obliging behaviours. High time pressure, the existence of other ongoing project(s), high expectation about future cooperation, high concern about reputation and low disputed amount are reasons for contractors' compromising behaviours.

Theoretical and Practical Contributions

This study makes contributions to the body of knowledge on both dispute management and contractual governance. First, rigid contract application in dispute situations is not limited to negotiations. Therefore, the scope of this study is the whole dispute resolution process. Although Chan *et al.* (2010) investigated the effects of three kinds of drivers on investors' behavioural strategies of dispute resolution, their focus is on investors' approaches to solve government-initiated renegotiation problems. In contrast, this study presents a nuanced picture of how multiple factors influence contractors' behavioural strategies of claim-related dispute resolution. The results constitute a supplement to the construction dispute management literature regarding drivers of behavioural strategies. Second, from the theoretical perspective of contractual governance, how to employ contracts to solve problems in construction projects is still in its infancy. This is a general topic and needs to be narrowed down to provide deeper insights. This study focuses on one specific problem, i.e. claim-related dispute resolution, and analyses contractors' rigid and flexible contract application in this problem situation. Hence, it enriches the contractual governance research from the reactive perspective and hopefully will stimulate more related research in the field of construction management. Third, drivers of contract application in problem situations have been investigated in other industries, such as supply chain management and strategy management (e.g., Faems *et al.*, 2008; Johnson and Sohi, 2016). Specific to the construction industry, Chen *et al.* (2018) revealed the impact of prior ties on a party's general level of severity of contract enforcement in a project after the other party's contract violations. Unlike their research, this study is limited to contractors' responses to one particular problem. The findings furnish a fine-grained understanding of multiple factors' different impacts on contractors' contract application in dealing with disputed claims and thus extend the body of knowledge on drivers of contract application in problem situations.

In addition to theoretical contributions, this study contributes to the industry in three main ways. First, this study is conducive to contractors' awareness of potential influencing factors behind their behavioural decisions. When selecting their behavioural strategies, inexperienced contractors may be unaware of the elements that need to be considered and hesitate to make a choice. The findings help to avoid contractors' blind decision-making in resolving disputed claims. Second, this study deepens owners' cognition of contractors' behavioural choices. Owners may predict contractors' possible behavioural strategies according to actual situations, and then reorient their own responses to resolve disputes efficiently. If contractors are expected to take the contractual approach, approving legitimate claims is a suggested solution for owners. Third, this study provides insights into both parties' ex-ante focus of attention on drivers. They may make efforts to change the values of some drivers in advance to facilitate the subsequent dispute resolution process, as explained in the previous section.

Limitations and Future Research

First, one common limitation of cross-sectional design is the ambiguity about the direction of causal influence (Bryman, 2012). In the structured questionnaire survey, most factors measured happened before the adoption of behavioural strategies. The open-ended questionnaire survey largely reduces the possibility of reverse time sequence and spurious correlation. Thus, the internal validity is improved (Babbie, 2011). Second, this study belongs to single-level research, which reduces the complexity of phenomena but only provides partial explanations. Future research may take a multilevel perspective to enrich theories. Third, the unexpected findings about procedural fairness and occurrence time of the dispute suggest that it might be worthy for future studies to explore their mediating mechanisms. Fourth, researchers are recommended to examine rigid and flexible contract application to solve problems in other contexts, e.g., how owners enforce contracts when contractors fail to behave as contracted.

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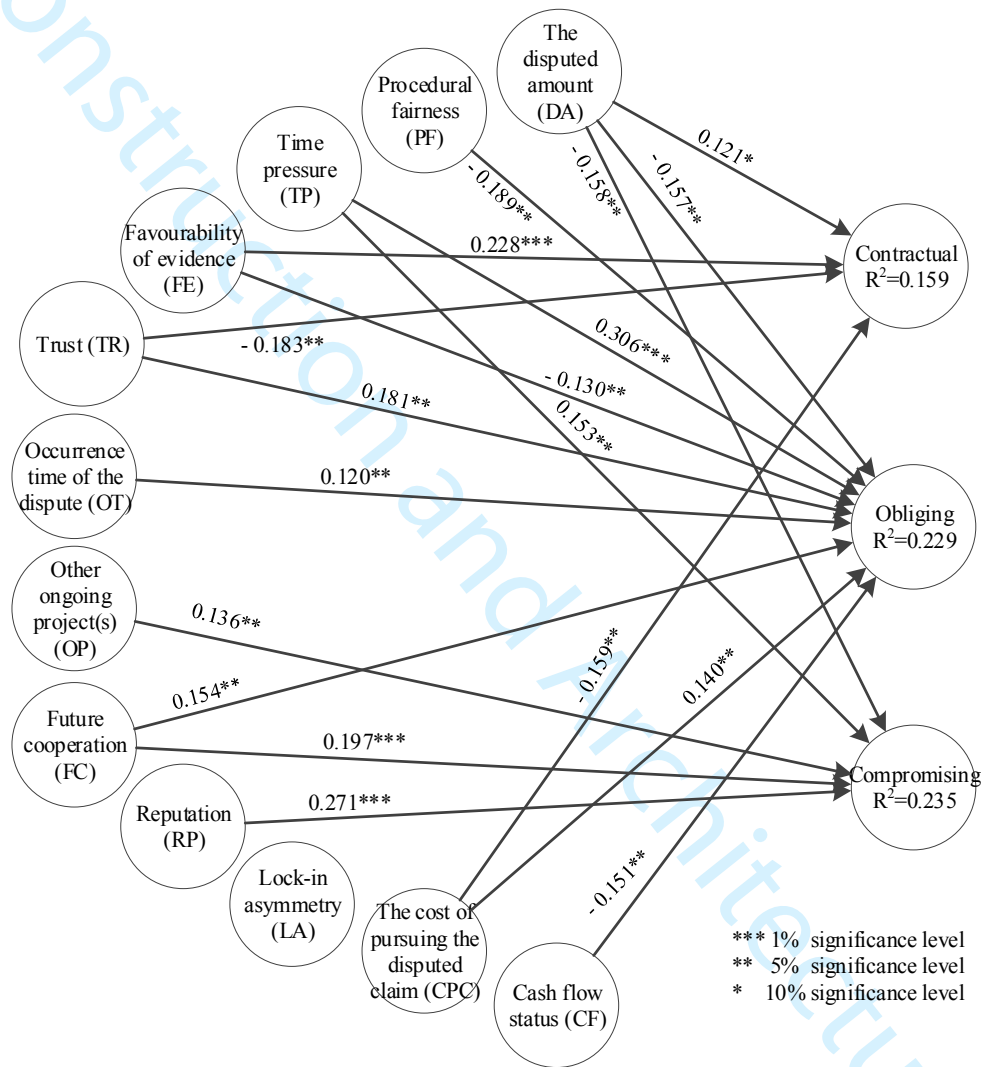


Figure 1. Graphical results

Table 1. Descriptions of factors identified from the literature

Factors	Descriptions	Sources
1. The disputed amount	The ratio of the disputed claim amount to the total contract amount	Marzouk and Moamen (2009); Marzouk <i>et al.</i> (2011); Zhang <i>et al.</i> (2016b)
2. Procedural fairness	Fairness perception about procedures used by the owner for dealing with the claim	Aibinu <i>et al.</i> (2008); Aibinu <i>et al.</i> (2011); Lu <i>et al.</i> (2017)
3. Time pressure	The desire to find solutions quickly because of negative consequences caused by the long duration of dispute resolution process	Stuhlmacher <i>et al.</i> (1998); Marzouk <i>et al.</i> (2011); Lu and Liu (2014)
4. Favourability of evidence	The degree of favourability of collected evidence supporting the claim	Marzouk <i>et al.</i> (2011); Lu and Liu (2014)
5. Trust	The contractor's positive expectation of the owner's good intention to perform in a trustworthy way before the dispute happened	Faems <i>et al.</i> (2008); Kong <i>et al.</i> (2014); Zhang <i>et al.</i> (2016b)
6. Shadow of the future - occurrence time of the dispute	The percentage of the total contract duration that had been completed until the dispute happened	Lumineau and Oxley (2012)
7. Shadow of the future - other ongoing project(s)	The existence of other ongoing project(s) with the same owner	Marzouk and Moamen (2009); Chan <i>et al.</i> (2010)
8. Shadow of the future - future cooperation	Expectation about future cooperation with the same owner before the dispute happened	Marzouk and Moamen (2009); Chan <i>et al.</i> (2010); Zhang <i>et al.</i> (2016b)
9. Shadow of the future - reputation	Concern about reputation before the dispute happened	Marzouk and Moamen (2009)
10. Lock-in	The degree of losses in terms of time and money caused by replacing partners or withdrawing midway before the dispute happened, including the owner's lock-in and the contractor's lock-in	Antia and Frazier (2001); Chang and Ive (2007)

Table 2. Measures of variables

Variables	Reference sources	Examples of items
The disputed amount ^d	Marzouk and Moamen (2009); Marzouk et al. (2011); Zhang et al. (2016)	“The approximate ratio of the disputed claim amount to the total contract amount was (considering the claim for additional payment and extension of time)”
Procedural fairness	Liu et al. (2012); Lu et al. (2017)	“The owner took our concern and feedback during the process of handling the claim”
Time pressure	Van Kleef et al. (2004)	“Our party experienced considerable time pressure”
Favourability of evidence	Lu and Liu (2014)	“Our party’s collected evidence in support of the claim was very favourable”
Trust	Jiang et al. (2013); Zhang et al. (2016)	“Our party believed that the owner was trustworthy”
Occurrence time of the dispute ^a	Lumineau and Oxley (2012)	“Until the dispute happened, what percentage of the total contract duration had been completed?”
Other ongoing project(s) ^a	Marzouk and Moamen (2009)	“Was there other ongoing project(s) with this owner during the process of dispute resolution?”
Future cooperation	Lui and Ngo (2012); Poppo and Zhou (2014)	“Our party expected to work with the owner on future projects”
Reputation	Carson et al. (2006)	“It was easy for outsiders to learn about how our party behaved in the previous projects”
The owner’s lock-in & The contractor’s lock-in	Poppo et al. (2008)	“The losses of terminating the project midway would have been prohibitive for the owner”; “The losses of withdrawing from the project midway would have been prohibitive for our party”
The cost of pursuing the disputed claim ^a	Gebken (2006)	“During the process of dispute resolution, your party believed that the cost of insisting the disputed amount (such as expenses for dispute handling personnel, lawyers’ fees, and arbitration/court fees), compared with the disputed amount, would be”
Cash flow status	Marzouk et al. (2011); Park et al. (2005)	“Our party was in desperate need of cash to support daily construction activities”
Contractual approach	Cheung and Chow (2011); Lin and Germain (1998); Wang et al. (2005)	“Our party argued strongly on just grounds and used the contract as a tool to get the owner to agree to our position”
Relational approach	Cheung et al. (2006); Lu, W. et al. (2015)	“Our party tried to satisfy the expectations of the owner” (obliging) “Our party used give and take so that a compromise could be reached” (compromising)

^aMeasured by one single indicator.

Table 3. Sample characteristics

	Characteristics	Number	Percentage
Professional qualifications	Project manager	103	41.5
	Contract administrator	70	28.2
	Cost administrator	22	8.9
	Administrator of contract and cost	12	4.9
	Others (e.g., chief engineers and senior managers of companies)	41	16.5
Years of working experience	< 5 years	42	16.9
	5 – 9 years	67	27.0
	10 – 19 years	89	35.9
	≥ 20 years	50	20.2
Project types	Buildings	105	42.3
	Transportation	56	22.6
	Industrial	46	18.6
	Others (e.g., petroleum projects and water projects)	41	16.5
Contract types – the scope of work	DBB	89	35.9
	Project general contracting (e.g., DB and EPC)	156	62.9
	Others (e.g., mixed)	3	1.2
Contract types – fee arrangement	Unit Price	76	30.7
	Lump Sum	162	65.3
	Cost Plus Fee	4	1.6
	Others (e.g., mixed)	6	2.4
Project locations	China	66	26.6
	Outside China	182	73.4
Whether or not from the same country	Yes	67	27.0
	No	181	73.0
Enterprise types of contractors	State-owned enterprise	228	91.9
	Private enterprise	20	8.1
Enterprise types of owners	Government	111	44.8
	State-owned enterprise	73	29.4
	Private enterprise	56	22.6
	Others (e.g., foreign enterprise)	8	3.2

To insist or to concede? Contractors' behavioural strategies when handling disputed claims

Supplemental Data

Tables in the supplemental data show the detailed results of descriptive statistics and the evaluation of measurement models and the structural model.

Table S1. Descriptive statistics and correlations

Variables	Means	Standard deviations	Pearson correlation matrix															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1. The disputed amount	4.069	1.414																
2. Procedural Fairness	4.774	1.134	-.028															
3. Time pressure	5.062	1.305	.087	-.047														
4. Favourability of evidence	5.315	1.256	.070	.126	.191													
5. Trust	4.512	1.114	-.037	.486	-.025	.048												
6. Occurrence time of the dispute	3.649	1.347	.047	.049	.029	-.125	-.046											
7. Other ongoing project(s)	1.440	.497	.066	-.158	-.015	-.125	-.105	-.035										
8. Future cooperation	5.567	1.141	-.055	.208	.000	.109	.308	-.013	-.241									
9. Reputation	5.730	.814	.034	.260	.338	.167	.262	-.009	-.165	.337								
10. Lock-in asymmetry	-.254	1.473	.039	.254	-.053	-.023	.144	.003	-.021	-.034	-.006							
11. The cost of pursuing the	3.206	1.354	.255	-.123	.133	-.011	-.127	.115	.046	-.122	.075	-.110						

disputed claim																
12. Cash flow status	4.278	1.587	.184	-.107	.343	-.062	-.007	-.091	.133	-.240	.008	-.128	.152			
13. Contractual approach	4.929	1.288	.124	.020	.150	.259	-.117	-.058	.058	-.027	.090	.078	-.098	.006		
14. Relational approach regarding obliging	4.234	1.414	-.139	-.096	.249	-.104	.094	.146	.007	.173	.165	-.072	.118	-.056	-.055	
15. Relational approach regarding compromising	5.763	.986	-.179	.033	.189	.069	.069	.021	.028	.284	.297	.005	-.129	-.107	.243	.238

Note: Correlations with an absolute value greater than 0.105 are significant at $p < 0.10$; Correlations with an absolute value greater than 0.124 are significant at $p < 0.05$; Correlations with an absolute value greater than 0.164 are significant at $p < 0.01$.

Table S2. Results of internal consistency reliability

Constructs		Cronbach's alpha	Composite reliability
Drivers	Procedural fairness	0.836	0.897
	Time pressure	0.885	0.929
	Favourability of evidence	0.948	0.967
	Trust	0.860	0.886
	Future cooperation	0.877	0.924
	Reputation	0.632	0.798
	The owner's lock-in (switching to another contractor)	0.891	/
	The owner's lock-in (terminating the project)	0.929	/
	The contractor's lock-in	0.917	/
	Cash flow status	0.935	0.955
Behavioural strategies	Contractual approach	0.770	0.866
	Relational approach regarding obliging	0.849	0.908
	Relational approach regarding compromising	0.829	0.897

Note: The owner's lock-in and the contractor's lock-in are not directly connected with others in the structural model, and thus the composite reliability is not accessible by SmartPLS.

Table S3. Results of convergent validity

Constructs	Indicators	Convergent validity	
		Outer loadings	AVE
Procedural fairness (PF)	PF_1	0.832	
	PF_2	0.837	0.744
	PF_3	0.916	
Time pressure (TP)	TP_1	0.901	
	TP_2	0.911	0.813
	TP_3	0.893	
Favourability of evidence (FE)	FE_1	0.952	
	FE_2	0.959	0.906
	FE_3	0.946	
Trust (TR)	TR_1	0.680	
	TR_2	0.691	
	TR_3	0.923	0.665
	TR_4	0.931	

1	Future cooperation (FC)	FC_1	0.875	
2				
3		FC_2	0.929	0.802
4				
5		FC_3	0.882	
6	Reputation (RP)	RP_1	0.793	
7				
8		RP_2	0.904	0.578
9				
10		RP_3	0.537	
11	Cash flow status (CF)	CF_1	0.912	
12				
13		CF_2	0.944	0.875
14				
15		CF_3	0.950	
16	Contractual approach (Contractual)	Contractual_1	0.872	
17				
18		Contractual_2	0.864	0.683
19				
20		Contractual_3	0.737	
21	Relational approach regarding obliging (Obliging)	Obliging_1	0.891	
22				
23		Obliging_2	0.845	0.768
24				
25		Obliging_3	0.892	
26	Relational approach regarding compromising			
27	(Compromising)	Compromising_1	0.860	
28				0.745
29		Compromising_2	0.869	
30				
31		Compromising_3	0.860	

Table S4. Indicators' cross-loadings and outer loadings

Indicators	DA	PF	TP	FE	TR	OT	OP	FC	RP	LA	CPC	CF	Contractual	Obliging	Compromising
DA	1.000	-0.034	0.084	0.071	-0.055	0.047	0.066	-0.060	0.024	0.039	0.255	0.188	0.121	-0.138	-0.177
PF_1	-0.051	0.832	-0.030	0.162	0.439	-0.017	-0.115	0.218	0.240	0.188	-0.115	-0.074	0.002	-0.044	0.085
PF_2	0.022	0.837	-0.039	0.050	0.381	0.038	-0.139	0.153	0.156	0.230	-0.115	-0.006	0.007	-0.092	-0.044
PF_3	-0.047	0.916	-0.045	0.117	0.422	0.110	-0.160	0.174	0.243	0.246	-0.091	-0.203	0.045	-0.106	0.047
TP_1	0.158	-0.064	0.901	0.185	-0.094	0.075	0.024	0.014	0.293	-0.071	0.124	0.353	0.190	0.196	0.150
TP_2	0.058	-0.086	0.911	0.214	0.002	0.015	-0.062	-0.011	0.259	-0.055	0.128	0.281	0.074	0.267	0.140
TP_3	0.018	0.020	0.893	0.119	0.022	-0.014	-0.003	0.001	0.329	-0.017	0.107	0.236	0.136	0.220	0.227
FE_1	0.056	0.099	0.162	0.952	-0.002	-0.132	-0.100	0.095	0.140	-0.036	-0.038	-0.086	0.236	-0.131	0.066
FE_2	0.101	0.107	0.203	0.959	-0.018	-0.099	-0.127	0.081	0.131	-0.011	0.011	-0.050	0.272	-0.076	0.064
FE_3	0.043	0.158	0.174	0.946	0.013	-0.126	-0.129	0.137	0.177	-0.019	-0.005	-0.055	0.253	-0.082	0.072
TR_1	-0.021	0.391	-0.032	0.146	0.680	-0.074	-0.055	0.264	0.135	0.073	-0.123	0.009	-0.050	0.029	0.004
TR_2	0.012	0.384	-0.001	0.105	0.691	-0.094	-0.087	0.279	0.222	0.011	-0.112	0.016	-0.067	0.042	0.018
TR_3	-0.011	0.433	-0.015	-0.031	0.923	-0.038	-0.082	0.222	0.159	0.190	-0.094	-0.010	-0.147	0.096	0.039
TR_4	-0.100	0.415	-0.030	-0.048	0.931	0.046	-0.125	0.282	0.202	0.197	-0.100	-0.054	-0.127	0.139	0.158
OT	0.047	0.065	0.027	-0.125	-0.014	1.000	-0.035	-0.013	-0.001	0.003	0.115	-0.088	-0.058	0.147	0.021
OP	0.066	-0.163	-0.014	-0.125	-0.114	-0.035	1.000	-0.241	-0.149	-0.021	0.046	0.129	0.058	0.006	0.028
FC_1	-0.073	0.209	-0.001	0.079	0.270	-0.037	-0.194	0.875	0.309	-0.051	-0.142	-0.214	-0.034	0.129	0.238
FC_2	-0.092	0.190	0.016	0.110	0.310	-0.008	-0.225	0.929	0.353	-0.052	-0.150	-0.226	-0.018	0.188	0.294
FC_3	0.013	0.156	-0.015	0.101	0.217	-0.007	-0.228	0.882	0.240	0.009	-0.041	-0.226	-0.027	0.153	0.230

1																
2																
3																
4																
5	RP_1	0.085	0.253	0.275	0.136	0.235	0.049	-0.167	0.314	0.793	0.025	0.040	0.011	0.045	0.138	0.205
6	RP_2	-0.015	0.182	0.259	0.117	0.103	-0.005	-0.090	0.273	0.904	0.035	0.032	-0.080	0.141	0.071	0.380
7	RP_3	0.004	0.162	0.238	0.123	0.222	-0.058	-0.114	0.197	0.537	-0.061	0.090	0.035	0.039	0.164	0.126
8	LA	0.039	0.259	-0.052	-0.023	0.180	0.003	-0.021	-0.037	0.014	1.000	-0.110	-0.136	0.084	-0.071	0.003
9	CPC	0.255	-0.119	0.132	-0.011	-0.117	0.115	0.046	-0.127	0.059	-0.110	1.000	0.154	-0.104	0.121	-0.128
10	CF_1	0.152	-0.124	0.380	-0.050	-0.009	-0.097	0.132	-0.198	0.021	-0.087	0.130	0.912	-0.011	-0.007	-0.070
11	CF_2	0.185	-0.147	0.334	-0.044	-0.009	-0.081	0.136	-0.233	-0.010	-0.136	0.154	0.944	-0.016	-0.064	-0.096
12	CF_3	0.181	-0.111	0.246	-0.081	-0.045	-0.078	0.108	-0.247	-0.071	-0.137	0.143	0.950	-0.016	-0.092	-0.136
13	Contractual_1	0.087	0.018	0.110	0.282	-0.128	-0.053	0.054	-0.041	0.113	0.113	-0.134	-0.075	0.872	-0.119	0.153
14	Contractual_2	0.135	-0.006	0.132	0.160	-0.115	-0.029	0.096	-0.038	0.053	0.011	-0.026	-0.015	0.864	-0.054	0.170
15	Contractual_3	0.088	0.054	0.133	0.194	-0.087	-0.060	-0.005	0.015	0.108	0.063	-0.075	0.108	0.737	0.051	0.286
16	Obliging_1	-0.136	-0.115	0.184	-0.141	0.103	0.116	0.011	0.141	0.072	-0.052	0.069	-0.032	-0.091	0.891	0.165
17	Obliging_2	-0.114	-0.016	0.257	-0.048	0.104	0.146	0.001	0.207	0.213	-0.031	0.140	-0.077	-0.015	0.845	0.263
18	Obliging_3	-0.115	-0.131	0.217	-0.079	0.099	0.124	0.006	0.115	0.078	-0.104	0.105	-0.075	-0.058	0.892	0.198
19	Compromising_1	-0.193	0.034	0.119	0.019	0.122	0.014	0.028	0.254	0.267	0.055	-0.155	-0.116	0.169	0.253	0.860
20	Compromising_2	-0.108	0.141	0.162	0.124	0.117	0.033	-0.013	0.233	0.358	0.045	-0.114	-0.085	0.240	0.090	0.869
21	Compromising_3	-0.156	-0.070	0.217	0.042	0.020	0.007	0.057	0.256	0.270	-0.087	-0.064	-0.102	0.207	0.273	0.860

Note: (1) DA = the disputed amount; PF = procedural fairness; TP = time pressure; FE = favourability of evidence; TR = trust; OT = occurrence time of the dispute; OP = other ongoing project(s); FC = future cooperation; RP = reputation; LA = lock-in asymmetry; CPC = the cost of pursuing the disputed claim; CF = cash flow status; Contractual = contractual approach; Obliging = relational approach regarding obliging; Compromising = relational approach regarding compromising.

(2) Numbers in bold are indicators' outer loadings on their associated constructs.

Table S5. Results of Fornell-Larcker criterion

Constructs	DA	PF	TP	FE	TR	OT	OP	FC	RP	LA	CPC	CF	Contractual	Obliging	Compromising
DA	1.000														
PF	-0.034	0.863													
TP	0.084	-0.045	0.902												
FE	0.071	0.127	0.189	0.952											
TR	-0.055	0.476	-0.024	-0.003	0.815										
OT	0.047	0.065	0.027	-0.125	-0.014	1.000									
OP	0.066	-0.163	-0.014	-0.125	-0.114	-0.035	1.000								
FC	-0.060	0.206	0.001	0.109	0.300	-0.013	-0.241	0.896							
RP	0.024	0.251	0.327	0.156	0.212	-0.001	-0.149	0.339	0.760						
LA	0.039	0.259	-0.052	-0.023	0.180	0.003	-0.021	-0.037	0.014	1.000					
CPC	0.255	-0.119	0.132	-0.011	-0.117	0.115	0.046	-0.127	0.059	-0.110	1.000				
CF	0.188	-0.134	0.319	-0.067	-0.028	-0.088	0.129	-0.247	-0.035	-0.136	0.154	0.935			
Contractual	0.121	0.026	0.148	0.267	-0.135	-0.058	0.058	-0.028	0.114	0.084	-0.104	-0.005	0.827		
Obliging	-0.138	-0.098	0.252	-0.101	0.116	0.147	0.006	0.177	0.140	-0.071	0.121	-0.071	-0.061	0.876	
Compromising	-0.177	0.038	0.193	0.071	0.098	0.021	0.028	0.287	0.345	0.003	-0.128	-0.117	0.238	0.240	0.863

Note: (1) DA = the disputed amount; PF = procedural fairness; TP = time pressure; FE = favourability of evidence; TR = trust; OT = occurrence time of the dispute; OP = other ongoing project(s); FC = future cooperation; RP = reputation; LA = lock-in asymmetry; CPC = the cost of pursuing the disputed claim; CF = cash flow status; Contractual = contractual approach; Obliging = relational approach regarding obliging; Compromising = relational approach regarding compromising.

(2) The values on the diagonal are the square root of reflective constructs' AVE values. The values in the off-diagonal position are the correlations between the constructs.

Table S6. The HTMT values for all pairs of constructs

Constructs	DA	PF	TP	FE	TR	OT	OP	FC	RP	LA	CPC	CF	Contractual	Obliging	Compromising
DA															
PF	0.050														
TP	0.092	0.071													
FE	0.072	0.142	0.209												
TR	0.046	0.573	0.049	0.109											
OT	0.047	0.069	0.041	0.128	0.081										
OP	0.066	0.174	0.035	0.128	0.112	0.035									
FC	0.071	0.244	0.021	0.119	0.356	0.021	0.257								
RP	0.057	0.357	0.451	0.213	0.341	0.061	0.205	0.457							
LA	0.039	0.279	0.056	0.024	0.152	0.003	0.021	0.044	0.067						
CPC	0.255	0.135	0.141	0.020	0.137	0.115	0.046	0.132	0.089	0.110					
CF	0.190	0.131	0.377	0.066	0.035	0.094	0.138	0.265	0.094	0.132	0.157				
Contractual	0.142	0.044	0.183	0.299	0.141	0.065	0.071	0.050	0.150	0.086	0.108	0.099			
Obliging	0.151	0.120	0.289	0.114	0.107	0.159	0.007	0.201	0.220	0.077	0.130	0.069	0.112		
Compromising	0.194	0.113	0.222	0.081	0.089	0.023	0.042	0.333	0.432	0.079	0.141	0.121	0.308	0.281	

Note: DA = the disputed amount; PF = procedural fairness; TP = time pressure; FE = favourability of evidence; TR = trust; OT = occurrence time of the dispute; OP = other ongoing project(s); FC = future cooperation; RP = reputation; LA = lock-in asymmetry; CPC = the cost of pursuing the disputed claim; CF = cash flow status; Contractual = contractual approach; Obliging = relational approach regarding obliging; Compromising = relational approach regarding compromising.

Table S7. Confidence intervals bias corrected for HTMT

Pairs of constructs	Original sample	Sample mean	5.0%	95.0%	Confidence interval does not include 1
CPC -> CF	0.157	0.159	0.044	0.274	Yes
Compromising -> CF	0.121	0.132	0.049	0.228	Yes
Compromising -> CPC	0.141	0.148	0.046	0.260	Yes
Contractual -> CF	0.099	0.123	0.037	0.135	Yes
Contractual -> CPC	0.108	0.127	0.044	0.215	Yes
Contractual -> COM	0.308	0.308	0.178	0.447	Yes
DA -> CF	0.190	0.189	0.068	0.305	Yes
DA -> CPC	0.255	0.254	0.148	0.360	Yes
DA -> Compromising	0.194	0.195	0.074	0.317	Yes
DA -> Contractual	0.142	0.148	0.042	0.259	Yes
FC -> CF	0.265	0.264	0.154	0.375	Yes
FC -> CPC	0.132	0.141	0.052	0.240	Yes
FC -> Compromising	0.333	0.334	0.212	0.449	Yes
FC -> Contractual	0.050	0.095	0.020	0.056	Yes
FC -> DA	0.071	0.091	0.021	0.127	Yes
FE -> CF	0.066	0.089	0.025	0.164	Yes
FE -> CPC	0.020	0.059	0.001	0.021	Yes
FE -> Compromising	0.081	0.111	0.032	0.154	Yes
FE -> Contractual	0.299	0.299	0.161	0.441	Yes
FE -> DA	0.072	0.087	0.023	0.172	Yes
FE -> FC	0.119	0.127	0.041	0.245	Yes
LA -> CF	0.132	0.138	0.032	0.250	Yes
LA -> CPC	0.110	0.113	0.014	0.217	Yes
LA -> Compromising	0.079	0.098	0.021	0.120	Yes
LA -> Contractual	0.086	0.115	0.025	0.149	Yes
LA -> DA	0.039	0.066	0.001	0.110	Yes
LA -> FC	0.044	0.074	0.007	0.074	Yes
LA -> FE	0.024	0.065	0.003	0.038	Yes
OP -> CF	0.138	0.138	0.038	0.246	Yes

1						
2						
3	OP -> CPC	0.046	0.062	0.002	0.129	Yes
4						
5	OP -> Compromising	0.042	0.076	0.003	0.059	Yes
6						
7	OP -> Contractual	0.071	0.101	0.015	0.128	Yes
8						
9	OP -> DA	0.066	0.076	0.005	0.161	Yes
10						
11	OP -> FC	0.257	0.257	0.143	0.355	Yes
12						
13	OP -> FE	0.128	0.130	0.032	0.235	Yes
14						
15	OP -> LA	0.021	0.054	0.000	0.059	Yes
16						
17	OT -> CF	0.094	0.102	0.020	0.209	Yes
18						
19	OT -> CPC	0.115	0.117	0.014	0.221	Yes
20						
21	OT -> Compromising	0.023	0.067	0.004	0.026	Yes
22						
23	OT -> Contractual	0.065	0.087	0.017	0.136	Yes
24						
25	OT -> DA	0.047	0.065	0.002	0.131	Yes
26						
27	OT -> FC	0.021	0.065	0.003	0.025	Yes
28						
29	OT -> FE	0.128	0.128	0.035	0.234	Yes
30						
31	OT -> LA	0.003	0.054	0.000	0.002	Yes
32						
33	OT -> OP	0.035	0.058	0.001	0.098	Yes
34						
35	Obliging -> CF	0.069	0.100	0.026	0.112	Yes
36						
37	Obliging -> CPC	0.130	0.135	0.042	0.255	Yes
38						
39	Obliging -> Compromising	0.281	0.292	0.172	0.390	Yes
40						
41	Obliging -> Contractual	0.112	0.143	0.050	0.154	Yes
42						
43	Obliging -> DA	0.151	0.152	0.046	0.265	Yes
44						
45	Obliging -> FC	0.201	0.205	0.095	0.317	Yes
46						
47	Obliging -> FE	0.114	0.131	0.048	0.211	Yes
48						
49	Obliging -> LA	0.077	0.101	0.022	0.165	Yes
50						
51	Obliging -> OP	0.007	0.063	0.001	0.001	Yes
52						
53	Obliging -> OT	0.159	0.160	0.051	0.273	Yes
54						
55	PF -> CF	0.131	0.152	0.068	0.189	Yes
56						
57	PF -> CPC	0.135	0.139	0.037	0.260	Yes
58						
59	PF -> Compromising	0.113	0.150	0.064	0.128	Yes
60						
	PF -> Contractual	0.044	0.107	0.020	0.036	Yes
	PF -> DA	0.050	0.084	0.007	0.079	Yes
	PF -> FC	0.244	0.246	0.122	0.363	Yes

1						
2						
3	PF -> FE	0.142	0.157	0.060	0.261	Yes
4						
5	PF -> LA	0.279	0.278	0.151	0.394	Yes
6						
7	PF -> OP	0.174	0.175	0.066	0.281	Yes
8						
9	PF -> OT	0.069	0.095	0.019	0.106	Yes
10						
11	PF -> Obliging	0.120	0.148	0.056	0.218	Yes
12						
13	RP -> CF	0.094	0.134	0.037	0.119	Yes
14						
15	RP -> CPC	0.089	0.117	0.020	0.159	Yes
16						
17	RP -> Compromising	0.432	0.437	0.288	0.566	Yes
18						
19	RP -> Contractual	0.150	0.189	0.064	0.226	Yes
20						
21	RP -> DA	0.057	0.111	0.006	0.070	Yes
22						
23	RP -> FC	0.457	0.457	0.341	0.572	Yes
24						
25	RP -> FE	0.213	0.220	0.099	0.345	Yes
26						
27	RP -> LA	0.067	0.114	0.010	0.105	Yes
28						
29	RP -> OP	0.205	0.210	0.095	0.329	Yes
30						
31	RP -> OT	0.061	0.104	0.003	0.088	Yes
32						
33	RP -> Obliging	0.220	0.245	0.117	0.321	Yes
34						
35	RP -> PF	0.357	0.360	0.215	0.501	Yes
36						
37	TP -> CF	0.377	0.376	0.243	0.494	Yes
38						
39	TP -> CPC	0.141	0.143	0.035	0.265	Yes
40						
41	TP -> Compromising	0.222	0.225	0.105	0.344	Yes
42						
43	TP -> Contractual	0.183	0.193	0.083	0.311	Yes
44						
45	TP -> DA	0.092	0.112	0.035	0.170	Yes
46						
47	TP -> FC	0.021	0.073	0.014	0.014	Yes
48						
49	TP -> FE	0.209	0.210	0.099	0.321	Yes
50						
51	TP -> LA	0.056	0.085	0.011	0.109	Yes
52						
53	TP -> OP	0.035	0.070	0.001	0.043	Yes
54						
55	TP -> OT	0.041	0.077	0.004	0.056	Yes
56						
57	TP -> Obliging	0.289	0.288	0.157	0.416	Yes
58						
59	TP -> PF	0.071	0.106	0.020	0.098	Yes
60						
	TP -> RP	0.451	0.453	0.326	0.574	Yes
	TR -> CF	0.035	0.081	0.017	0.033	Yes
	TR -> CPC	0.137	0.141	0.046	0.245	Yes

TR -> Compromising	0.089	0.133	0.040	0.104	Yes
TR -> Contractual	0.141	0.159	0.066	0.226	Yes
TR -> DA	0.046	0.087	0.008	0.058	Yes
TR -> FC	0.356	0.356	0.221	0.480	Yes
TR -> FE	0.109	0.129	0.041	0.162	Yes
TR -> LA	0.152	0.167	0.063	0.234	Yes
TR -> OP	0.112	0.121	0.039	0.216	Yes
TR -> OT	0.081	0.098	0.027	0.137	Yes
TR -> Obliging	0.107	0.140	0.045	0.191	Yes
TR -> PF	0.573	0.573	0.461	0.667	Yes
TR -> RP	0.341	0.349	0.220	0.458	Yes
TR -> TP	0.049	0.099	0.032	0.044	Yes

Note: DA = the disputed amount; PF = procedural fairness; TP = time pressure; FE = favourability of evidence; TR = trust; OT = occurrence time of the dispute; OP = other ongoing project(s); FC = future cooperation; RP = reputation; LA = lock-in asymmetry; CPC = the cost of pursuing the disputed claim; CF = cash flow status; Contractual = contractual approach; Obliging = relational approach regarding obliging; Compromising = relational approach regarding compromising.

Table S8. Significance testing of the structural model path coefficients

Relationships	Path coefficients	p values	90% Confidence intervals bias corrected	Confidence interval does not include 0
DA -> Contractual	0.121	0.070*	[0.010, 0.232]	Yes
DA -> Obliging	-0.157	0.012**	[-0.264, -0.059]	Yes
DA -> Compromising	-0.158	0.018**	[-0.271, -0.052]	Yes
PF -> Contractual	0.045	0.631	[-0.109, 0.197]	No
PF -> Obliging	-0.189	0.040**	[-0.324, -0.026]	Yes
PF -> Compromising	-0.089	0.396	[-0.264, 0.072]	No
TP -> Contractual	0.093	0.246	[-0.049, 0.216]	No
TP -> Obliging	0.306	0.000***	[0.188, 0.414]	Yes
TP -> Compromising	0.153	0.044**	[0.028, 0.277]	Yes
FE -> Contractual	0.228	0.002***	[0.111, 0.350]	Yes

1					
2					
3	FE -> Obliging	-0.130	0.038**	[-0.228, -0.020]	Yes
4	FE -> Compromising	0.017	0.792	[-0.086, 0.123]	No
5					
6	TR -> Contractual	-0.183	0.011**	[-0.289, -0.056]	Yes
7					
8	TR -> Obliging	0.181	0.024**	[0.048, 0.305]	Yes
9					
10	TR -> Compromising	0.017	0.853	[-0.135, 0.161]	No
11					
12	OT -> Contractual	-0.025	0.641	[-0.108, 0.070]	No
13					
14	OT -> Obliging	0.120	0.037**	[0.032, 0.219]	Yes
15					
16	OT -> Compromising	0.044	0.460	[-0.050, 0.145]	No
17					
18	OP -> Contractual	0.084	0.168	[-0.016, 0.187]	No
19					
20	OP -> Obliging	0.051	0.389	[-0.049, 0.146]	No
21					
22	OP -> Compromising	0.136	0.017**	[0.042, 0.229]	Yes
23					
24	FC -> Contractual	-0.039	0.555	[-0.151, 0.068]	No
25					
26	FC -> Obliging	0.154	0.033**	[0.026, 0.268]	Yes
27					
28	FC -> Compromising	0.197	0.004***	[0.085, 0.308]	Yes
29					
30	RP -> Contractual	0.106	0.226	[-0.041, 0.247]	No
31					
32	RP -> Obliging	0.015	0.847	[-0.115, 0.146]	No
33					
34	RP -> Compromising	0.271	0.000***	[0.150, 0.396]	Yes
35					
36	LA -> Contractual	0.089	0.186	[-0.023, 0.196]	No
37					
38	LA -> Obliging	-0.035	0.575	[-0.137, 0.068]	No
39					
40	LA -> Compromising	0.021	0.745	[-0.081, 0.132]	No
41					
42	CPC -> Contractual	-0.159	0.018**	[-0.265, -0.045]	Yes
43					
44	CPC -> Obliging	0.140	0.035**	[0.037, 0.258]	Yes
45					
46	CPC -> Compromising	-0.103	0.139	[-0.218, 0.009]	No
47					
48	CF -> Contractual	-0.024	0.770	[-0.152, 0.118]	No
49					
50	CF -> Obliging	-0.151	0.043**	[-0.271, -0.025]	Yes
51					
52	CF -> Compromising	-0.083	0.253	[-0.199, 0.039]	No

Note: (1) DA = the disputed amount; PF = procedural fairness; TP = time pressure; FE = favourability of evidence; TR = trust; OT = occurrence time of the dispute; OP = other ongoing project(s); FC = future cooperation; RP = reputation; LA = lock-in asymmetry; CPC = the cost of pursuing the disputed claim; CF = cash flow status; Contractual = contractual approach; Obliging = relational approach regarding obliging; Compromising = relational approach regarding compromising.

(2) *p < 0.10; **p < 0.05; ***p < 0.01.