



# Research into the moderating effects of progress and quality performance in project dispute negotiation

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## Abstract

Project disputes are inevitable. However, for disputes to be settled, a contractor is faced with the dilemma of choosing between an extension of the time for completion under its entitled rights, and expediting to avoid delay. In order to decide which strategy is the most beneficial, this paper explores the moderating effects of progress and quality performance on the relationship between bargaining power (dependent variable) and its critical factors (independent variable). To achieve this, we conducted a questionnaire survey. First, through a study of the literature and expert interviews, we identified 11 factors of bargaining power (as well as which ones were the most critical) using a principal component analysis to calculate the factors' influence weight on bargaining power. Second, we adopted moderated multiple regression (MMR) analysis to examine how progress and quality performance affect the relationships between these critical factors and bargaining power. The result suggests that there are nine MMR models that have a significant moderating effect on these relationships. We then identified six of these models with the strongest relative moderating effect. The results illustrate that progress and quality performance can help improve negotiation outcomes. Therefore, when project disputes occur, the contractor's best strategy is to strive to reduce the project time loss, guarantee the quality of the project, and gain the owner's recognition, which will help to resolve the project dispute successfully through negotiation, and achieve their shared intended goal.

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## 1. Introduction

A Chinese contractor and a European contractor were employed to carry out a project in Africa. Throughout the contract period, disputes frequently occurred between the owner and the two contractors, to the point where the owner refused almost all of the contractors' requests for an extension of time and extra costs. However, confronted with this situation, the two contractors chose to take entirely opposite actions. The European contractor continued to execute the work under the schedule he considered

to be reasonable without any effort to work quicker. But the Chinese contractor not only racked their brains to take adoption of crashing technology in order to guarantee the completion of the work on time, but also assisted the European contractor with parts of their work in accordance with the owner's request as well. In the package dispute negotiation thereafter, the Chinese contractor achieved a very satisfactory outcome. Moreover, the Chinese contractor also gained the recognition and trust of the owner, as all the subsequent contracts in the second and third stages of this project were awarded to them rather than the European contractor. From this individual case, we can deduce a universal hypothesis that, through satisfying progress and quality performance, a contractor can improve its bargaining power in project dispute negotiations, which may also result in a better negotiation outcome.

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In project dispute negotiation, “bargaining power” refers to the ability to achieve the expected negotiation outcome in a particular bargaining situation (Argyres and Liebeskind, 1999; Deutsch, 1973). In competitive bargaining, the bargaining power of the two parties wax and wane alternately, and it is generally believed that the sum of each party’s bargaining power is equal to one (Svejnar, 1986). To figure out which party’s initial offer is closer to the final outcome, we can identify the party which generates the most interest, which is considered a good indicator of who holds the most power to achieve the negotiator’s goals. Through this, we can finally measure bargaining power. Therefore, for the first time, we can produce an equation to work out the contractor’s bargaining power by using the given initial offer of the owner and the contractor and the final closing price. The equation is as follows:

$$\text{contractor's bargaining power} = \frac{\text{final closing price} - \text{owner's initial offer price}}{\text{contractor's initial offer price} - \text{owner's initial offer price}} \quad (1)$$

In Table 1, we have displayed the factors influencing bargaining power, as referenced in some major relevant literature. Negotiators’ variable personality traits influence their negotiation tactics, which, in turn, affect negotiation outcomes (Barry and Friedman, 1998; Cheung et al., 2006; Dimotakis et al., 2012; Forgas, 1998; Greenhalgh and Gilkey, 1986; Kaushal and Kwantes, 2006; Mintu-Wimsatt and Calantone, 1996; Yiu and Lee, 2011). If negotiators can grasp sufficient professional knowledge well, and use the negotiation skills appropriately and comprehensively, they are also more likely to achieve a better result (Cheung et al., 2009; Mintu-Wimsatt and Calantone, 1996). In addition to this, well-operated businesses, high levels of management, sufficient favorable evidence, and exclusively possessed core technology also facilitate in gaining the upper hand in negotiations (Bosse and Alvarez, 2010; Mintu-Wimsatt and Calantone, 1996; Nakamura, 2005; Nie, 2010; Si, 2008). Furthermore, the inclination towards (or probability of) further cooperation – which is easily overlooked – is also beneficial for shortening dispute durations, and avoiding their escalation (Cheung et al., 2002; Jeff and Brenan, 1999; Lu et al., 2008;

Nie et al., 2009). Some papers also emphasize that contract provisions, as the foundation of a dispute resolution, play an important role in negotiation outcome (Cheung et al., 2008; Stipanowich and O’Neal, 1995).

Progress and quality performance are critical influencing factors for project success (Chua et al., 1999; Gao et al., 2002; Kog and Loh, 2012). In the process of construction, disputes between the owner and the contractor are nearly always inevitable, and we have continually attached a great deal of importance to negotiation when both sides intend to solve a dispute (Leung et al., 2005; Yiu et al., 2008). Distressful effects undoubtedly emerge if such disputes are left unsettled. However, does satisfying progress and quality performance facilitate the settling of disputes? In previous research, scholars have mentioned the significant effects of these on the success of projects (Kog and Loh, 2012). Yet, to date, no large-scale research has attempted to investigate how to link these two indicators with an improvement to a contractor’s bargaining power, or the achievement of better negotiation outcomes.

Based on the relationship between the critical factors of project dispute negotiation and bargaining power, this paper introduces progress and quality performance as moderating indicators in order to find out whether (and how) different levels of each can affect this relationship. To achieve this, we adopted a research model in this study (Fig. 1). The three factors underpinning this model are: progress/quality performance; critical factors of bargaining power; and bargaining power. The research is composed of two stages. Firstly, we sent out questionnaires to ascertain the critical factors of bargaining power, and the negotiation outcome of each particular bargaining process. We then employed a moderated multiple regression (MMR) method to examine the moderating effects of progress and quality performance on the negotiation outcome.

MMR is an effective method to quantify the effects of an independent variable (Z) on the relationship between another independent variable (X) and a dependent variable (Y) (Hair and Anderson, 1998). In other words, if a relationship exists between X and Y, and Z as a moderating variable can affect this relationship, then we can consider Z to have a moderating effect. This paper applied the MMR method in the field of construction management in order to test the moderating effects of progress and quality performance (moderating variable Z) on the relationship between

Table 1  
Influencing factors of bargaining power.

Classification	Factors	Frequency	Literature
Negotiator traits	X <sub>1</sub> negotiator’s technical ability	3	(Barry and Friedman, 1998; Mintu-Wimsatt and Calantone, 1996; Zhang et al., 2007)
	X <sub>2</sub> negotiator’s personality traits	8	(Barry and Friedman, 1998; Cheung et al., 2006; Dimotakis et al., 2012; Forgas, 1998; Greenhalgh and Gilkey, 1986; Kaushal and Kwantes, 2006; Mintu-Wimsatt and Calantone, 1996; Yiu and Lee, 2011)
	X <sub>3</sub> negotiator’s skill	3	(Cheung et al., 2009; Yiu et al., 2012; Zhang et al., 2007)
Enterprise traits	X <sub>4</sub> attitude of further cooperation	4	(Cheung et al., 2002; Jeff and Brenan, 1999; Lu et al., 2008; Nie et al., 2009)
	X <sub>5</sub> possibility of further cooperation	4	(Cheung et al., 2002; Jeff and Brenan, 1999; Lu et al., 2008; Nie et al., 2009)
	X <sub>6</sub> status of operation	2	(Bosse and Alvarez, 2010; Mintu-Wimsatt and Calantone, 1996)
	X <sub>7</sub> level of management	2	(Bosse and Alvarez, 2010; Mintu-Wimsatt and Calantone, 1996)
	X <sub>8</sub> exclusion of the contractor’s technology	2	(Bosse and Alvarez, 2010; Nakamura, 2005)
Project traits	X <sub>9</sub> sufficiency of evidence	2	(Nie, 2010; Si, 2008)
	X <sub>10</sub> completeness of Contract	2	(Cheung et al., 2008; Stipanowich and O’Neal, 1995)
	X <sub>11</sub> degree of urgency to solve	1	(Nie et al., 2009)

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