The impact of power and relationship commitment on customer integration: A replication and extension


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Abstract

Purpose This study aims to examine the relationships between power, relationship commitment and customer integration by replicating and extending Zhao et al. (2008) in China and the United States.

Design/methodology/approach This study collects data from 210 manufacturers in China and 202 manufacturers in the United States. Structural equation modelling is used to analyze the data.

Findings This study finds that normative relationship commitment is positively associated with customer integration and expert and referent power are positively associated with normative relationship commitment in China and the United States. Reward and coercive power are positively associated with, whereas referent power is negatively associated with instrumental relationship commitment in China. Referent, legal legitimate and reward power are positively associated with, whereas expert and legitimate power are negatively associated with instrumental relationship commitment in the United States.

Originality This study provides empirical evidence on the distinct impacts of different bases of mediated and non-mediated power in China and the United States, contributing to the development of the power-relationship commitment theory. The findings also provide insights into where and when the theory applies. The results can provide guidelines for managers to adjust the use of power to improve relationship commitment and customer integration in China and the United States.

Keywords: power, relationship commitment, customer integration, replication
**1. Introduction**

Normative relationship commitment is the willingness by an organization to secure a relationship because of its identification with and emotional attachment to the goals and values of the other organization (Morgan and Hunt, 1994). It is intrinsic, as it is based on the identification and internalisation of common norms and values with another organisation (Brown et al., 1995). Instrumental relationship commitment is based on compliance (Brown et al., 1995). Compliance occurs when one organization is influenced by another in hope of receiving a favourable reaction from the other organization (Zhang et al., 2020). Instrumental relationship commitment is driven by extrinsic rewards or punishment. Power can be defined as the ability of an organization to influence the intentions, actions and decisions of another organization (Zhao et al., 2008). Brown et al. (1995) argue that a supplier’s use of mediated power is positively associated with a buyer’s instrumental relationship commitment and negatively associated with a buyer’s normative relationship commitment, while a supplier’s use of non-mediated power has the opposite effects. They empirically test the hypotheses in the United States and find that the use of mediated power increases instrumental relationship commitment and decreases normative relationship commitment and the use of non-mediated power increases normative relationship commitment but does not significantly affect instrumental relationship commitment. Based on the same theoretical arguments, Zhao et al. (2008) investigate the impacts of a buyer’s use of power on instrumental and normative relationship commitment and the impacts of instrumental and normative relationship commitment on customer integration in China. Although the research framework is generally supported, they fail to prove a negative link between non-mediated power and instrumental relationship commitment. However, Liu et al. (2015) report that the use of non-mediated power by a dominant firm is negatively related to contractual trust in China. Moreover, Zhao et al.’s (2008) findings show that legitimate power does not affect normative and instrumental relationship commitment and that reward power is positively related to normative and instrumental relationship commitment. Therefore, more empirical studies on the impacts of power on relationship commitment in China and the United States are needed.

Since its publication, Zhao et al. (2008) has inspired a stream of studies on the roles of power in supply chain management (Table 1). The empirical evidence supports the dichotomization of power (Brown et al., 1995) and reveals that different bases of power have different effects on performance outcomes (Yang et al., 2021, Chae et al., 2017, Liu et al., 2015). Moreover, the dichotomization of coercive and non-coercive power is mainly used in the studies conducted in China (Zhang et al., 2020, Pan et al., 2020, Huo et al., 2019), whereas
the dichotomization of mediated and non-mediated power has been used in China as well as other countries (Yang et al., 2021, Chae et al., 2017).

The existing empirical evidence provides mixed support for the findings of Zhao et al. (2008). Researchers have found that non-mediated power enhances supply chain collaboration (Nyaga et al., 2013), knowledge sharing (Chen et al., 2016) and goodwill trust (Liu et al., 2015), that reward power is positively associated with supply chain collaboration (Nyaga et al., 2013), relationship commitment (Chae et al., 2017) and justice perception (Chen and Chen, 2019), and that coercive power reduces goodwill trust (Liu et al., 2015), knowledge sharing (Chen et al., 2016), justice perception (Chen and Chen, 2019), and normative commitment (Zhang et al., 2020) and increases opportunism (Huo et al., 2019, Wang et al., 2015). These findings are generally consistent with those of Zhao et al. (2008). However, studies have also reported that reward power does not affect contractual and goodwill trust (Liu et al., 2015), non-mediated power reduces contractual trust (Liu et al., 2015), and coercive power does not affect instrumental relationship commitment (Zhang et al., 2020), which are inconsistent with those of Zhao et al. (2008). In addition, most of the studies focus on the overall effects of mediated/non-mediated or coercive/non-coercive power (e.g. Yang et al., 2021, Zhang et al., 2020, Wang et al., 2015) or the effects of specific bases of power (Chen and Chen, 2019, Chen et al., 2016.). There is limited empirical evidence on the distinct impacts of different bases of mediated and non-mediated power (Zhao et al., 2008).

Studies have reported findings that are inconsistent with the theoretical arguments of Brown et al. (1995) and Zhao et al. (2008), which calls for empirical research to test the power-relationship commitment theory. First, Zhao et al.’s (2008) finding on the positive effect of reward power on normative relationship commitment is further supported. For example, researchers have found that the use of reward power increases supplier’s relationship commitment (Chae et al., 2017), sustainable supplier management and justice perception (Chen and Chen, 2019), and supply chain collaborative behaviour and adaptive behaviour (Nyaga et al., 2013). Second, researchers also report that a buyer’s use of coercive power is positively linked to sustainable supplier management (Chen and Chen, 2019) and does not significantly affect contractual trust (Liu et al., 2015) and instrumental commitment (Zhang et al., 2020), which are inconsistent with Zhao et al.’s (2008) results. Therefore, the empirical evidence reveals that mediated power has mixed effects on supply chain relationships and performance outcomes because reward and coercive power may affect relationship commitment through
different mechanisms. Moreover, researchers find that non-coercive power increases instrumental relationship commitment, which does not support the arguments of Brown et al. (1995) and Zhao et al. (2008). For example, a supplier’s use of non-coercive power is found to be positively associated with contract enforcement and compliance (Pan et al., 2020) and instrumental commitment (Zhang et al., 2020).

This study aims to empirically examine the relationships between power, relationship commitment and customer integration by replicating and extending Zhao et al. (2008) in China and the United States. A replication is a substantial duplication of previously published empirical research using similar data and methods (Hubbard et al., 1998). It keeps the contingent conditions as similar as possible to those of the previous study. An extension is a duplication of previously published empirical research with certain parameters held constant and certain parameters changed between the previous and focal studies (Hubbard et al., 1998). It generalizes the findings across populations and contexts. This study replicates Zhao et al. (2008) by using similar measurement, conceptual framework and analysis (Tsang and Kwan, 1999). The study also extends Zhao et al. (2008) by considering legal legitimate power which refers that a manufacturer believes in the right of a customer to wield influence using contracts (Benton and Maloni, 2005) and by testing the framework in the United States. The results provide insights on the distinct effects of different bases of power on normative and instrumental relationship commitment in China and the United States. Moreover, the results enhance the understanding of the reliability, generalisability and boundary conditions of the findings of Zhao et al. (2008), contributing to the development of the power-relationship commitment theory. The study can also provide guidelines on how managers can make decisions on the use of different bases of power and adjust relationship commitment to improving supply chain integration in China and the United States.

2. Literature review and research hypotheses

2.1 Customer power

Zhao et al. (2008) focus on five bases of power: expert power (the source has the knowledge, expertise or skills desired by the target), referent power (the target values identification with the source), legitimate power (the target believes that the source has the natural right to influence it), reward power (the source can mediate rewards to target), and coercive power (the source can mediate punishment to target). This study also considers legal legitimate power (the target believes the source has the judiciary right to influence it) (Maloni and Benton, 2000) for two reasons. First, researchers have viewed legal legitimate as a critical base of mediated power.
(Maloni and Benton, 2000, Benton and Maloni, 2005). Second, along with the globalization of supply chains and the opening-up of markets, China has been reforming its business and legal systems (Huo et al., 2018) and hence Chinese companies rely more and more on contractual governance when managing supply chain relationships (Wang et al., 2011). Moreover, the United States has well-established business law and legal environment, and hence customers may tend to use legal legitimate power to manage collaboration with a manufacturer.

Expert, referent and legitimate power are non-mediated power (Maloni and Benton, 2000). Non-mediated power is relational and positive in orientation, and its influence is exerted indirectly and is less manipulative (Huo et al., 2019). Therefore, how much a manufacturer will be influenced by a customer’s use of non-mediated power is determined by the manufacturer (French and Raven, 1959). Non-mediated power is associated with a positive attitude towards supply chain relationships (Ireland and Webb, 2007). Reward, coercive and legal legitimate power are mediated power (Maloni and Benton, 2000). When using mediated power, a customer (source) intends to bring direct actions to a manufacturer (target) using positive or negative reinforcements (Benton and Maloni, 2005). Customers decide whether, when and how to use mediated power to influence the manufacturer’s decisions and behaviour (French and Raven, 1959). Therefore, customers deliberately use mediated power to guide a manufacturer’s response, and hence it is viewed as the competitive and negative use of power (Chae et al., 2017).

Researchers have investigated the impacts of power on supply chain management in China and the United States. In the surveys conducted in the United States, researchers have found that expert, referent and reward power are positively associated with, whereas legal legitimate and coercive power are negatively associated with supply chain relationships (Maloni and Benton, 2000, Benton and Maloni, 2005). In the surveys conducted in China, some findings, such as non-mediated power increases goodwill trust (Liu et al., 2015), and coercive power reduces goodwill trust (Liu et al., 2015), justice perception (Chen and Chen, 2019) and normative commitment (Zhang et al., 2020), and increases opportunism (Huo et al., 2019, Wang et al., 2015), are aligned with the arguments of Brown et al. (1995) and Zhao et al. (2008). However, other findings, such as reward power does not affect goodwill and contractual trust (Liu et al., 2015) and coercive power does not influence instrumental commitment (Zhang et al., 2020), are inconsistent with the results of Zhao et al. (2008). Moreover, existing studies provide limited empirical evidence on the distinct effects of different bases of non-mediated (i.e. expert, referent and legitimate) and mediated (i.e. reward, coercive and legal legitimate) power on supply chain relationships.
2.2 The impact of customer power on normative relationship commitment

Non-mediated power fosters congruence in the values and norms of supply chain members (Liu et al., 2015). Thus, it improves normative relationship commitment (Zhang et al., 2020). The use of mediated power may damage relational norms, cooperation and reduce the strength of the relationship between partners in a supply chain (Yang et al., 2021, Morgan and Hunt, 1994). Thus, the use of mediated customer power will be associated with lower levels of normative relationship commitment.

Expert power indicates that a manufacturer believes customers can bring valuable knowledge and expertise (Benton and Maloni, 2005). For example, if a customer is known for its expertise in a particular process, manufacturers will look to it as an industry leader and seek to establish a committed relationship with it. The use of expert power also reflects a customer’s goodwill in extending the relationships (Chen et al., 2016). Expert power thus drives a manufacturer to accept a customer’s influence because the manufacturer admires how the customer manages its operations and thus wants to stay in the relationship (Ramaseshan et al., 2006, Ireland and Webb, 2007). Therefore, we propose the following hypotheses.

H1: Expert power is positively associated with normative relationship commitment in (a) China and (b) the United States.

Referent power indicates that a manufacturer wants to be identified with a customer and to internalise the customer’s values and norms of behaviour (Benton and Maloni, 2005). The use of referent power helps a customer enhance a manufacturer’s recognition of its values, beliefs and goals (Chae et al., 2017). Referent power thus enables a customer and manufacturer to engage in constructive communication and take a positive approach to resolve conflict, which increases emotional attachment (Ramaseshan et al., 2006). The use of referent power is also the affirmation and encouragement given by a customer to manufacturers, motivating the manufacturers to invest in partnerships (Zhang et al., 2020). Therefore, we propose the following hypotheses.

H2: Referent power is positively associated with normative relationship commitment in (a) China and (b) the United States.

Legitimate power indicates that a manufacturer believes that its customer has the legitimate right to influence it and it is obligated to accept that influence (Maloni and Benton, 2000). As a manufacturer legitimizes a customer’s influence, the manufacturer does not question actions taken by the customer (Zhao et al., 2008). The manufacturer believes that the customer has the natural right to expect things to be done according to its requirements (Chae et al., 2017). Moreover, a customer’s legitimate power stems from internalized values in the manufacturer.
Thus, the use of legitimate power enhances positive attitudes on relationships and enables the manufacturer to be identified with the customer (Brown et al., 1995). Therefore, we propose the following hypotheses.

**H3: Legitimate power is positively associated with normative relationship commitment in (a) China and (b) the United States.**

A customer’s use of reward power manipulates a manufacturer through the provision of rewards for desired behaviours (Zhao et al., 2008). Reward power is manipulative by nature and can be adopted by a customer to take advantage of the supply chain relationship (French and Raven, 1959). Thus, it may damage trust and relational norms and reduce the positive perceptions of a manufacturer towards a long-term relationship with the customer (Liu et al., 2015). Customers’ provision of preferential treatment may have negative impacts when norms and values are central (Brown et al., 1995). Thus, reward power is inconsistent with normative relationship commitment (Morgan and Hunt, 1994). Therefore, we propose the following hypotheses.

**H4: Reward power is negatively associated with normative relationship commitment in (a) China and (b) the United States.**

A customer’s punitive actions can be viewed by a manufacturer as opportunistic behaviours that damage trust (Liu et al., 2015), and hence they hinder cooperation (Chae et al., 2017). Using threats and punishments to manipulate a manufacturer to engage in desired behaviours and imposing penalties or enforcement measures to control the manufacturer reflect that a customer regards the supply chain relationship to be a pure transaction instead of trustful cooperation (Huo et al., 2019, Pan et al., 2020). As a result, the manufacturer intends to take actions to avoid punishment, which reduces emotional attachment with the customer (Ramaseshan et al., 2006). Therefore, we propose the following hypotheses.

**H5: Coercive power is negatively associated with normative relationship commitment in (a) China and (b) the United States.**

A customer’s use of legal legitimate power manipulates a manufacturer through enforcing contracts (Maloni and Benton, 2000). Legal legitimate power involves the use of contractual agreements and legal threats to pressure a manufacturer into complying with the customer’s requests (Handley and Benton, 2012). Thus, it represents the competitive and negative use of power and the explicit application of pressure (Brown et al., 1995). The use of legal legitimate power is not a friendly action and indicates that the customer does not value the relationship (Handley and Benton, 2012). Managing supply chain relationships through a legally binding
agreement can be interpreted as a sign of distrust, decreasing normative relationship commitment. Therefore, we propose the following hypotheses.

H6: Legal legitimate power is negatively associated with normative relationship commitment in (a) China and (b) the United States.

2.3 The impact of customer power on instrumental relationship commitment

The more a manufacturer is influenced by a customer’s non-mediated power, the more it focuses on common norms and values (Brown et al., 1995). Therefore, non-mediated power is negatively associated with instrumental relationship commitment. When using mediated power, there is an extrinsic motivation driving the manufacturer to comply with the customer’s requirements to achieve a favourable outcome for itself. Thus, it is positively associated with instrumental relationship commitment (Zhao et al., 2008).

A customer’s use of expert power indicates that the customer has knowledge or skills desired by a manufacturer (Maloni and Benton, 2000). The manufacturer values the learning opportunities and hence willingly accepts the customer’s influence (Brown et al., 1995). A manufacturer can access new and valuable knowledge via the customer, such as market demand and customer preference, which have a positive impact on the manufacturer’s growth and strategic development (Chen et al., 2016). Thus, expert power decreases a manufacturer’s tendency to make commitments based on the calculation of short-term benefits and costs (Zhao et al., 2008). Therefore, we propose the following hypotheses.

H7: Expert power is negatively associated with instrumental relationship commitment in (a) China and (b) the United States.

Referent power indicates that a manufacturer seeks identification with a customer because of its perception of the customer’s reputation (Handley and Benton, 2012). It is based on positive emotional ties and is closely related to a customer’s management style and organizational personality (Zhao et al., 2008, French and Raven, 1959). The use of referent power indicates that a customer has developed a strong bond with a manufacturer (Zhao et al, 2008). As a result, the manufacturer will invest in the relationship even if it cannot bargain for valuable returns or gain profits (Brown et al., 1995, Zhang et al., 2020). Therefore, we propose the following hypotheses.

H8: Referent power is negatively associated with instrumental relationship commitment in (a) China and (b) the United States.

A customer’s use of legitimate power indicates that a manufacturer believes that the customer retains the natural right to influence it (Zhao et al., 2008). Legitimate power reveals that a manufacturer values customers’ importance and desires to become closely associated
with the customers instead of pursuing favourable reactions or rewards (French and Raven, 1959, Maloni and Benton, 2000). It also provides a signal of a manufacturer’s good faith in the relationship and its expectation to establish a cooperative relationship (Zhao et al., 2008). As a result, the manufacturer has a negative attitude towards investing in supply chains according to cost-benefit analysis (Brown et al., 1995). Therefore, we propose the following hypotheses.

**H9: Legitimate power is negatively associated with instrumental relationship commitment in (a) China and (b) the United States.**

Reward power uses positive feedback to motivate manufacturers to perform specific behaviours (Chen and Chen, 2019). Manufacturers obey customers as the customers can provide rewards that are attractive to the manufacturers, which implies that the manufacturers care more about their interests rather than cooperative relationships (Brown et al., 1995). Thus, manufacturers place substantial weight on the anticipated favourite reactions of customers. They tend to calculate the rewards to be derived in the supply chain relationship and adjust their behaviours and actions accordingly (Zhao et al., 2008, Nyaga et al., 2013). Therefore, we propose the following hypotheses.

**H10: Reward power is positively associated with instrumental relationship commitment in (a) China and (b) the United States.**

When customers use coercive power, they may blacklist non-compliant manufacturers or reduce orders (Chen and Chen, 2019). Thus, coercive power can be perceived by a manufacturer as negative performance feedback (Chae et al., 2017). This may prompt the manufacturer to take actions to avoid punishment rather than to establish compatible values (Brown et al., 1995, Ramaseshan et al., 2006). Coercive power provides a basis for maintaining interest-based relationships (Wang et al., 2015) and a manufacturer accepts a customer’s influence to avoid the customer’s punitive actions (Yeung et al., 2009). Hence, the manufacturer may decide to invest in the relationship only if it receives favourable reactions and benefits (Zhao et al., 2008). Therefore, we propose the following hypotheses.

**H11: Coercive power is positively associated with instrumental relationship commitment in (a) China and (b) the United States.**

Customers may manipulate a manufacturer by using sections of legal agreements and contractual clauses (Maloni and Benton, 2000). Relying on legal legitimate power to monitor and control supply chain processes may lead to opportunistic behaviours as it is difficult to design a complete and effective contract (Wang et al., 2011). Moreover, using contracts and agreements to manage supply chains facilitates the negotiations between a manufacturer and customers, which allows the manufacturer to bargain for rewards and favourable terms of trade
Legal legitimate power also leads to compliance as a manufacturer is legally obligated (Benton and Maloni, 2005). Therefore, we propose the following hypotheses.

**H12:** Legal legitimate power is positively associated with instrumental relationship commitment in (a) China and (b) the United States.

### 2.4 The impact of normative and instrumental relationship commitment on customer integration

Customer integration refers to the degree to which a manufacturer cooperates with customers to structure their inter-organizational strategies, practices, procedures and behaviours into collaborative, synchronized and manageable processes to fulfil customer requirements (Zhao et al., 2008). It can build competence that is derived from better coordination with customers in a supply chain to achieve improved service capabilities at lower total supply chain costs (Zhang and Huo, 2013, Wang and Zhang, 2020). Customer integration emphasizes building collaborative relationships and strategic alliances in a supply chain. Information sharing, coordination and synchronization of processes and strategic partnership are the key practices for customer integration (Zhao et al., 2008).

Normative relationship commitment can lead to stable and collaborative relationships that reduce opportunistic behaviours in supply chain transactions (Zhang et al., 2020). The essence of normative relationship commitment is that a manufacturer builds and maintains a cooperative relationship based on emotional connections and values (Brown et al., 1995). It increases the emotional and team attachment of the supply chain, which promotes the willingness to invest financial, physical or other resources (Morgan and Hunt, 1994). Thus, normative relationship commitment helps a supply chain develop shared values and goals, improve information sharing and process cooperation and develop strategic partnerships, enhancing customer integration (Zhang and Huo, 2013, Yeung et al., 2009). Therefore, we propose the following hypotheses.

**H13:** Normative relationship commitment is positively associated with customer integration in (a) China and (b) the United States.

Instrumental relationship commitment drives a manufacturer to actively engage in a supply chain relationship to seek favourable terms of trade and rewards (Zhao et al., 2008). The calculation of costs and benefits also leads to compliance (Brown et al., 1995), which increases the investment that is devoted by a manufacturer to maintain cooperation with customers based on its interests (Zhang et al., 2020). Moreover, instrumental relationship commitment motivates a manufacturer to invest in processes and technologies that improve information
sharing and process synchronization with customers because they enable the manufacturer to 
maximize its interests and profits (Zhao and Huo, 2013). Therefore, we propose the following 

H14: Instrumental relationship commitment is positively associated with customer integration in (a) China and (b) the United States.

3. Research method

3.1 Sampling and data collection

We collected data from manufacturers in China and the United States using a random sampling method. We focused on Tianjin and Chongqing as representative cities in China because they are direct-administered municipalities of China and reflect an average level of economic reform and marketization. We used the directory of the Manufacturers Association in both cities as the sampling frame. In the United States, manufacturers were randomly selected from a list purchased from Dun & Bradstreet.

The targeted respondents included the supply chain manager, CEO/president, and vice president (Zhao et al., 2008). In China, there was a small participation incentive provided. In the United States, respondents had the opportunity to participate in a drawing for three free iPads. Follow-up telephone calls were made to improve the response rate, and respondents were contacted to clarify any missing data in their responses. The data were collected in 2012 in both countries. A total of 1188 and 2500 manufacturers were sent questionnaires in China and the United States, respectively. There was a total of 210 responses in China and 202 in the United States, corresponding to a response rate of 17.7% in China and 8.1% in the United States.

Table 2 shows the profile of the samples. We defined a major customer as the customer purchasing the highest Yuan/Dollar volume from a manufacturer (Zhao et al., 2008). It indicates that the major customers account for a significant percentage of the manufacturers’ sales. Besides, Table 2 reveals that the collaboration between the manufacturers and their major customers are long-term and stable, and hence the samples are appropriate for studying relationship commitment.

| Insert Table 2 here |

3.2 Questionnaire design and measures

We adopted the measures used by Zhao et al. (2008) to measure expert, referent, legitimate, reward and coercive power, normative and instrumental relationship commitment and
customer integration. The measure for legal legitimate power was developed based on the study by Maloni and Benton (2000). The measurement items for all constructs are listed in Appendix A. A 7-point Likert scale was used for all responses. The questionnaire was originally developed in English. It was translated into Chinese by an operations management professor in China. The Chinese version was then translated back into English by another operations management professor in the United States and checked against the original English version for accuracy. The Chinese and English version of the questionnaire was used to collect data in China and the United States respectively.

3.3 Measurement invariance
In cross-country research, the consistency of the measurement models among different countries is important for the comparison of the findings (Deng et al., 2005). We tested the configural invariance, full metric invariance and partial metric invariance models to evaluate the measurement invariance between the two samples collected in China and the United States (Rungtusanatham et al., 2008) (Appendix B). The results establish configural equivalence across the two samples, whereas full metric invariance cannot be accepted. Then, we tested the construct-level metric invariance model to find out the non-invariant metric constructs (Deng et al., 2005). The results are used to build a partial metric invariance model. The model fit indices show that the partial metric invariance is accepted. Therefore, the scale can yield an accurate measurement of contextual issues across the two countries and guarantee that cross-country differences are not caused by the differences in measurement scales (Rungtusanatham et al., 2008).

3.4 Assessment of potential bias
Early and late (after four or more calls) respondents were compared on physical assets, annual sales and the number of employees, with a t-test showing no significant differences (p>0.1), indicating that non-response bias is not a major concern in this study. Since we used a single respondent in each organization, the common method bias was checked (Podsakoff et al., 2003). First, we have conducted Harman’s single factor test. We included all items from all of the constructs into a confirmatory factor analysis (CFA) model to determine whether the majority of the variance can be accounted for by one general factor (Podsakoff et al., 2003). The model fit indices (Chi-square (1019) =5998.04, RMSEA= 0.20, NNFI = 0.63, and CFI = 0.64) were unacceptable and significantly worse than those for the measurement model. This suggests that a single factor model is not acceptable. Second, we used the method of controlling for the effects of an unmeasured latent methods factor (Podsakoff et al., 2003). We built a CFA model in which items were allowed to load on their theoretical constructs, as well as on a latent
common methods variance factor. The fit indices of this model are marginally improved compared with the measurement model (Δ RMSEA=-0.009, ΔNNFI=0.005 and ΔCFI=0.006). Meanwhile, the path coefficients of the items and their significance are similar between the two models. This suggests that they are robust, though latent common methods variance factor was included in the measurement model. Hence, common method bias is not a serious concern (Podsakoff et al., 2003).

3.5 Measurement analysis
Content validity was established by grounding the instrument in the existing literature (Zhao et al., 2008). Cronbach’s alpha value was used to test reliability. The results showed that Cronbach’s alpha values ranged from 0.631 to 0.947, reflecting that the measures are reliable. CFA was used to assess convergent and discriminant validity. In the CFA model, each item was linked to its corresponding construct, and the covariance among the constructs was freely estimated. The fit indices (Chi-square (938)=1822.56, RMSEA=0.070, NNFI = 0.93, and CFI = 0.94) indicated that the model was acceptable. The factor loadings ranged from 0.526 to 0.900 and all were significant. As a result, convergent validity was demonstrated. In order to assess discriminant validity, we built a constrained CFA model, in which the correlations among constructs were fixed to 1. This was compared with the original unconstrained model, in which the correlations among constructs were freely estimated. Our analysis revealed that all of the differences in Chi-square values were significant, indicating that the measures have discriminate validity. Table 3 contains descriptive statistics, including the correlation, mean and standard deviation.

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4. Analysis and results
We used structural equation modelling with the maximum likelihood estimation method and LISREL software to estimate the model (Deng et al., 2005). The fitness indices were Chi-square(980)=1896.28, RMSEA=0.071, NNFI=0.93, and CFI=0.93, which are acceptable. The standardized path coefficients are reported in Figure 1.

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In China, we find that expert (b=0.48, p<0.05) and referent (b=0.42, p<0.05) power are positively associated with normative relationship commitment. Therefore, H1a and H2a are
supported. The impacts of legitimate, legal legitimate, reward and coercive power on normative relationship commitment are not significant. Therefore, H3a, H4a, H5a and H6a are not supported. Referent power \((b=0.21, p<0.1)\) is negatively associated with instrumental relationship commitment. Therefore, H8a is supported. The effects of expert and legitimate power are not significant. Therefore, H7a and H9a are not supported. Reward \((b=0.36, p<0.1)\) and coercive \((b=0.29, p<0.1)\) power are positively associated with instrumental relationship commitment, whereas the effect of legal legitimate power on instrumental relationship commitment is not significant. Therefore, H10a and H11a are supported but H12a is not supported. Moreover, normative relationship commitment \((b=0.42, p<0.05)\) enhances customer integration whereas the impact of instrumental relationship commitment on customer integration is not significant. Therefore, H13a is supported but H14a is not.

In the United States, we find that expert \((b=0.26, p<0.05)\) and referent \((b=0.58, p<0.05)\) power are positively associated with normative relationship commitment. Therefore, H1b and H2b are supported. The impacts of legitimate, legal legitimate, reward and coercive power on normative relationship commitment are not significant. Therefore, H3b, H4b, H5b and H6b are not supported. Expert \((b=-0.40, p<0.05)\) and legitimate \((b=-0.31, p<0.05)\) power are negatively associated with instrumental relationship commitment, whereas referent power \((b=0.39, p<0.05)\) is positively associated with instrumental relationship commitment. Therefore, H7b and H9b are supported but H8b is not supported. Legal legitimate \((b=0.23, p<0.05)\) and reward \((b=0.22, p<0.05)\) power are positively associated with instrumental relationship commitment, whereas the impact of coercive power on instrumental relationship commitment is not significant. Therefore, H10b and H12b are supported but H11b is not. Moreover, normative relationship commitment enhances \((b=0.43, p<0.05)\) customer integration whereas the impact of instrumental relationship commitment on customer integration is not significant. Therefore, H13b is supported but H14b is not. The results of the hypotheses testing are summarized in Table 4.

5. Discussion and conclusions

5.1 The comparison of the results in China and the United States

We find that expert and referent power are positively associated with normative relationship commitment in China and the United States. We also find that legitimate power does not affect normative relationship commitment in the two countries, which provide empirical evidence on
the argument that the influence of a customer’s natural right on a manufacturer is universally accepted, and hence legitimate power is pervasive and does not particularly influence normative relationship commitment (Zhao et al., 2008). The results show that expert and legitimate power do not affect instrumental relationship commitment in China whereas they reduce instrumental relationship commitment in the United States. Researchers argue that the effects of power in supply chain management could be influenced by the cultural environment of a country (Zhao et al., 2008). China and the United States are significantly different in the cultural dimension of individualism (20 vs. 91) (Hofstede-insights, 2021). The cultural characteristics of individualism-collectivism may provide a possible explanation for the different impacts of non-mediated power on instrumental relationship commitment in the two countries (Zhao et al., 2008). China has a collectivist culture, in which people are “integrated into strong cohesive in-groups which . . . protect them in exchange for unquestioning loyalty” (Hofstede, 1991:225). A group’s values are embraced by each member of the group (Power et al., 2010). Thus, a manufacturer’s perception of power derives from whether customers are in-groups (Zhao et al., 2008). When a manufacturer accepts its customer’s influence because of the customer’s specialized knowledge and expertise, it learns from the customer (Zhao et al., 2008). However, the effectiveness and efficiency of learning depend on whether the manufacturer and customer are in-groups (Chen et al., 2016). Thus, in the collectivist culture, a customer’s use of expert and legitimate power does not affect a manufacturer’s expectation of receiving favourable reactions (Zhao et al., 2008). The United States has an individualistic culture that emphasizes an individual’s autonomy and independence (Hofstede, 1991). The opportunities for learning and the recognition of a customer’s natural right do not depend on whether a manufacturer and customer are in-group. Therefore, expert and legitimate power reduce instrumental relationship commitment. Moreover, we find referent power is negatively associated with instrumental relationship commitment in China but positively associated with it in the United States. The individualist culture emphasizes self-interest and personal goals (Power et al., 2010). A customer’s use of referent power indicates that a manufacturer values identification with the customer. In an individualist culture, a manufacturer develops a strong bond with a customer only when it can lead to favourable returns. Thus, a customer’s use of referent power drives a manufacturer to bargain for benefits in the United States. Referent power helps a manufacturer to build a close association with a customer and become in-groups in China (Zhao et al., 2008). Hence, it reduces instrumental relationship commitment in a collectivist culture. Therefore, the results
reveal that future studies could empirically investigate the influences of individualism on the impacts of non-mediated power.

We find that reward, coercive and legal legitimate power do not significantly affect normative relationship commitment in China and the United States. Although reward power is manipulative by nature, positive feedback may encourage a manufacturer to commit to values and norms and provide motivation for building long-term relationships (Zhao et al., 2008, Nayga et al., 2013). Thus, reward power may have both positive and negative influences on normative relationship commitment (Brown et al., 1995, Zhao et al. 2008). Although coercive power may lead to opportunistic behaviours (Huo et al., 2019), a customer may use it to promote its values and supply chain strategies. For example, a customer may use negative feedback to drive a manufacturer to invest in quality improvement and green manufacturing practices. A manufacturer may understand and accept the customer’s values on quality and sustainability after it adopts the practices. Therefore, the overall effect of coercive power on normative relationship commitment is insignificant as it has both positive and negative effects.

China is reforming its governmental administration and legal systems in compliance with international market rules (Huo et al., 2018). The United States has a well-established legal system and a tradition of rule of law. Contractual clauses and legal agreements have been well accepted by companies as a way to influence partners’ decisions and behaviours. As a result, a customer’s use of legal legitimate power will be accepted by a manufacturer as a common practice and hence does not affect normative relationship commitment.

We find that reward power has positive effects on instrumental relationship commitment in China and the United States. However, the impacts of coercive and legal legitimate power on instrumental relationship commitment are different in the two countries. China and the United States are significantly different in the cultural dimension of power distance (80 vs. 40) (Hofstede-insights, 2021). Power distance is the extent to which the less powerful members within a society expect and accept that power is distributed unequally (Hofstede, 1991). The United States has a low power distance culture (Hofstede, 1991), and hence there is a relatively low tolerance for inequality between powerful and less powerful members of a supply chain. When a customer threatens punishment to a manufacturer, the manufacturer will not be manipulated by the use of coercive power and hence it does not influence the manufacturer’s calculation of costs and benefits. Therefore, coercive power does not affect instrumental relationship commitment in the United States. In a high power distance culture like China, companies are more willing to accept coercive power without question (Hofstede, 1991). Therefore, negative feedback is an effective way to regulate and manage calculative
relationships and improve compliance (Zhao et al., 2008). Therefore, the finding reveals that future studies could empirically investigate the influences of power distance on the impacts of coercive power. Although China is improving its business environment, it still has an inadequate institutional environment and law enforcement is inefficient (Huo et al., 2018). Thus, the use of legal legitimate power is not an effective way for a customer to mediate punishment to a manufacturer in China. Therefore, it does not significantly affect instrumental relationship commitment. The United States has a well-developed and effective business and institutional environment. A customer’s use of legal legitimate power can effectively mediate punishment and hence legal legitimate power is positively associated with instrumental relationship commitment. Therefore, the finding suggests that future studies could empirically investigate the influences of the institutional environment on the impacts of legal legitimate power.

We find that normative relationship commitment promotes customer integration whereas the impact of instrumental relationship commitment on customer integration is not significant in China and the United States. The findings are consistent with those of Zhao et al. (2008). Although instrumental relationship commitment may lead to cooperation, it is short-term and loose in nature and cannot help a customer build strategic partnerships (Zhao et al., 2008). Thus, a manufacturer may behave opportunistically by not investing in relationship-specific assets that are critical for customer integration.

5.2 The comparison of the results in China and those of Zhao et al. (2008)

We find that the impacts of expert, referent and legitimate power on normative relationship commitment, those of expert, legitimate, reward and coercive power on instrumental relationship commitment and those of normative and instrumental relationship commitment on customer integration are consistent with the findings of Zhao et al. (2008). The result shows that the impact of referent power on instrumental relationship commitment is significant and negative. Although this is different compared with Zhao et al.’s (2008) finding, it is consistent with the hypothesis in Zhao et al. (2008). One possible reason is that China has introduced reforms in recent years to remove the barriers that previously damage business interests. The business environment in China has improved which motivates companies to build and maintain long-term relationships. When a customer uses referent power, a manufacturer can develop a strong bond and emotional tie with the customer (French and Raven, 1959). As a result, the manufacturer tends to invest in the relationship without considering the associated rewards and costs.
We also find that reward and coercive power do not significantly affect normative relationship commitment, which is inconsistent with Zhao et al. (2008). This might be the result of the recent development of the information and communication technology infrastructure in China and the investment in the digitalization of supply chains. As a result, supply chain transparency is improved and manufacturers are better informed when they respond to a customer’s use of mediated power. A manufacturer can decide the purpose of the rewards provided by a customer is to manipulate its behaviours or to develop and maintain a long-term, cooperative relationship. The manufacturer will not misinterpret the rewards as a gesture of goodwill, and hence a customer’s use of reward power will not significantly affect normative relationship commitment. A manufacturer may view the punishment by a customer as opportunistic behaviours. The improved supply chain transparency can help the manufacturer to decide the purpose of the punishment is to manipulate its decisions or to exploit the relationships. As a result, the manufacturer will not misinterpret the punishment as a signal that a customer wants to terminate the cooperation, and hence the customer’s use of coercive power will not significantly affect normative relationship commitment. A manufacturer may view the punishment by a customer as opportunistic behaviours. The improved supply chain transparency can help the manufacturer to decide the purpose of the punishment is to manipulate its decisions or to exploit the relationships. As a result, the manufacturer will not misinterpret the punishment as a signal that a customer wants to terminate the cooperation, and hence the customer’s use of coercive power will not significantly affect normative relationship commitment.

5.3 The comparison of the results in the United States and those of Brown et al. (1995)

We find that the impact of non-mediated power on normative relationship commitment and that of mediated power on instrumental relationship commitment in the United States are consistent with the findings of Brown et al. (1995). Moreover, the results show that expert and legitimate power are negatively associated with whereas referent power is positively associated with instrumental relationship commitment, which provides a possible explanation of the finding of the insignificant effect of non-mediated power on instrumental relationship commitment (Brown et al., 1995). The result reveals that different bases of non-mediated power may have conflicting effects on instrumental relationship commitment and hence researchers need to consider the individual effects of different bases of non-mediated power. Moreover, we find that reward, coercive and legal legitimate power do not significantly affect normative relationship commitment, whereas Brown et al. (1995) find that mediated power significantly reduces normative relationship commitment. Brown et al. (1995) also investigate the moderating effect of symmetry of power and find that a supplier’s use of mediated power does not significantly affect normative relational commitment when the supplier is more powerful. We focus on a manufacturer’s major customers and hence the customers usually are more powerful. Thus, the result supports Brown et al.’s (1995) finding on the moderating effect of symmetry of power. The finding suggests that researchers should consider the moderating effect of symmetry of power when investigating the impacts of mediated power.
5.4 Theoretical implications

This study contributes to the literature in two ways. First, this study contributes to the power-relationship commitment theory by providing empirical evidence on the distinct effects of expert, referent, legitimate, reward, coercive and legal legitimate power on normative and instrumental relationship commitment in China and the United States (Brown et al., 1995, Zhao et al., 2008). We find that different bases of mediated and non-mediated power have different effects on relationship commitment. The findings thus provide insights into the complex role of power in supply chain management (Ireland and Webb, 2007) and reveal that researchers should differentiate different bases of mediated and non-mediated power when investigating their effects on supply chain operations (Zhao et al., 2008). The results also show that mediated and non-mediated power have similar impacts on normative relationship commitment in China and the United States, whereas their impacts on instrumental relationship commitment are different in the two countries. Therefore, it provides a possible explanation for the mixed results on the impacts of power in supply chain management (Zhao et al., 2008, Brown et al., 1995).

We find that only normative relationship commitment enhances customer integration in the two countries. The result suggests that researchers should differentiate normative and instrumental relationship commitment in a supply chain (Zhao et al., 2008).

Second, replicating and extending Zhao et al. (2008) in China and the United States improve the reliability and generalisability of the power-relationship commitment theory. Although researchers argue that replication is essential for the integrity of empirical research and theory development, very few studies empirically verify the findings of previous research in supply chain management literature (van Weele and van Raaij, 2014). By employing the same theoretical framework and methodology but a different population, this study sheds light on the general applicability of the power-relationship commitment theory (Tsang and Kwan, 1999). The results reveal that the impacts of non-mediated power on normative relationship commitment, mediated power on instrumental relationship commitment and relationship commitment on customer integration in the Chinese and the United States samples are generally consistent with the findings of Zhao et al. (2008), increasing confidence of the findings. This study thus provides insights into the internal and external validity of the findings of Zhao et al. (2008) and how far the results are generalizable to a new context.

5.5 Managerial implications

The study provides guidelines for companies to develop relationship commitment and promote integration in supply chains using power in China and the United States. We recommend companies rely on normative relationship commitment to improving integration. Managers
should be aware that instrumental relationship commitment doesn’t enhance integration in both countries. Companies should also be aware that power has distinct effects on normative and instrumental relationship commitment in China and the United States. We recommend a company use expert and referent power to develop normative relationship commitment in China and the United States. For example, a company can increase its partners’ emotional attachment to its goals and values by making suggestions and giving advice, or by demonstrating how to run a business. In China, a company can use reward and coercive power to increase instrumental relationship commitment. For example, a company can increase its partners’ compliance by providing rewards and good treatment, or by punishing and withdrawing business from the partner. However, a company should be aware that the use of referent power reduces instrumental relationship commitment, and that the use of legitimate or legal legitimate power cannot influence normative nor instrumental relationship commitment in China. In the United States, a company can develop instrumental relationship commitment by using referent, reward and legal legitimate power. For example, referring to contractual clauses and legal agreements to influence a partner will motivate the partner to decide the investments in the relationship according to rewards and punishment offered by a company. A company should be aware that the use of expert and legitimate power reduces instrumental relationship commitment. For example, a company can reduce its partners’ calculation of costs and benefits in the relationships by using its natural rights or providing suggestions. A company should be warned that it cannot use coercive power to influence normative and instrumental relationship commitment in the United States.

5.6 Limitations and future research directions

This study has the following limitations that open avenues for future research. First, this study only collects data from manufacturers, which is a limitation. Future studies could collect data from both manufacturers and customers to investigate the impacts of power and relationship commitment in a supply chain. Second, this study focuses on the direct effects of power. Researchers argue that factors such as trust and symmetry of power may affect the impacts of power (Brown et al. 1995, Yeung et al., 2009). Future studies could empirically investigate the impacts of contingencies on the roles of power in supply chain management. Third, this study collected data from two cities in China. China is a diverse country and different regions may have different business and institutional environments. Future studies could collect data from various regions in China to empirically investigate the impact of power. Fourth, the study may have potential endogeneity issues because of confounding variables and measurement errors of the independent variables, which is a limitation (Ketokivi and McIntosh, 2017). Fifth, we
do not include cultural dimensions and institutional environment in the research model. Future studies could measure the cultural and institutional environment and empirically investigate their effects on the relationships between power, relationship commitment and integration (Zhao et al., 2008).

References


Appendix A Construct measurement

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Insert Table A1 here
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Appendix B Measurement invariance

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Insert Table A2 here
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