The Impact of Power on Relationship Commitment in Supply Chains

Baofeng Huo, Xiande Zhao, Jeff Hoi Yan Yeung

Department of Decision Sciences and Managerial Economics, Faculty of Business Administration, The Chinese University of Hong Kong (baofeng@baf.msmail.cuhk.edu.hk; xiande@baf.msmail.cuhk.edu.hk; Jeff@baf.msmail.cuhk.edu.hk)

ABSTRACT

While power-relationship commitment theory in relationship marketing area has been established well in the west literature, few studies examine the robustness of it in the Chinese context with a different culture. The generalization of power-relationship commitment theory in supply chain triple relationships may also extend our knowledge in this important area. Most of the previous studies on power-relationship commitment only investigated the relationship between two major types of power and one or two types of relationship commitment in the dyadic inter-organizational relationships.

Five types of power used by the suppliers or customers and their impacts on manufacturers’ two types of relationship commitment are examined based on 617 manufacturing companies in Chinese supply chains. The influence of two types of relationship commitment on supply chain performance is also investigated in this study from the perspectives of both suppliers and customers. The results indicate that the impacts of customers’ use of power on relationship commitment are different from the impacts of suppliers’ use of power. Suppliers’ use of expert and reward power increases manufacturers’ both normative and instrumental relationship commitment. But, suppliers’ use of coercive power decreases manufacturers’ normative relationship commitment. In contrast, Customers’ use of expert power, referent power and reward power has a positive impact on manufacturers’ normative relationship commitment, but customers’ use of coercive power has a negative impact. Customers’ use of reward power and coercive power has a positive effect on manufacturers’ instrumental relationship commitment, but customers’ use of legitimate power has a negative effect. Except for expert power, customers’ use of power is more effective to influence manufacturers’ relationship commitment than suppliers’ use of power. The results also reveal that normative relationship commitment improve supply chain performance directly.

Keywords: Power, Relationship Commitment, SCM, China.

1. Introduction

Supply chain management (SCM) has received much attention from both practitioners and academicians. SCM is the systematic, strategic coordination of traditional business functions within a particular company and across the businesses in the supply chain to improve the long-term performance of the companies and the supply chain as a whole (Mentzer, 2001).

Lambert and Cooper cited the Global Supply Chain Forum (GSCF)’s definition of SCM as “the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders.” (Lambert & Cooper, 2000, P66). They argued that SCM is a new way of managing business process and relationships across the supply chain. They stated that “successful SCM requires a change from managing individual functions to integrating activities into key supply chain processes” (Lambert and Cooper, 2000, P71).

Inter-organizational relationship plays a crucial role for the companies in achieving SCM goals, “without a foundation of effective supply chain organizational relationships, any efforts to manage the flow of information or materials across the supply chain are likely to be unsuccessful.” (Handfield & Nichols, 1999, p.9-10).
While there is a dearth of research on the factors that influence relationship commitment in SCM area, marketing researchers have studied the factors that influence inter-firm relationships (e.g., Boyle, et al., 1992, Brown et al., 1995, Johnson et al., 1993). A company can use different types of power to influence the decisions of its partners. Though some types of power, such as coercive power, may bring some conflicts or detriment for the long-term-oriented relationship, some other types of power, such as expert power and referent power, usually improve the identification of the partners and enhance closeness of the relationship. As an effective influence strategy, power plays a crucial role in channel member interaction (Boyle, et al., 1992). Brown et al. (1995) empirically investigated the impact of power and relationship commitment on marketing channel member’s performance from relationship marketing perspective. They found that suppliers’ use of power influence retailers’ commitment to the channel relationship, and the commitment influence the perceived performance of the suppliers, and subsequently the financial performance of the retailers.

There is an increasing interest in power issues in Operations Management area (e.g. Benton & Maloni, 2005; Crook & Combs, 2006; Cox, 2001; Ireland & Webb, 2006; Maloni & Benton, 2000). Furthermore, in SCM area, considering the importance of inter-organizational relationships, power, as an influencing strategy to affect the partners’ relationship commitment, is emphasized by more and more scholars and practitioners. To increase the robustness, the power-relationship commitment theory established in marketing distribution literature needs to undertake the justification in SCI context.

Supplier-buyer dyads, such as use of power and relationship commitment, have been studies extensively in marketing and management research (e.g. Brown, et al., 1995), however, few researches examine them from a supply chain perspective. In a supply chain, a company may play different role in the supplier-buyer dyad. For example, a company is a supplier of its customers and a customer of its suppliers. How could the company use power to influence its suppliers and customers’ relationship commitment in a supply chain? Will the company commit to the relationships with its suppliers and with its customers in a similar way?

Previous studies found that more powerful companies more frequently use mediated power to influence others (Gundlach & Cadotte, 1994). Frazier et al. (1989) also presented that strong channel members are less likely to use non-mediated power. So, the supplier/customer will used different type of power to influence others and the effects should be different. What are the differences between suppliers’ use of power and customers’ use of power in a supply chain?

In order for Chinese manufacturers to compete in the global marketplace, they must strive to improve their supply chain operations, and SCM is an important way to enhance global competitiveness. China’s dynamic competitive environment provides a fertile ground for investigating power, relationship commitment and their impact on SCM. Since most previous studies of power and relationship commitment were conducted in the U.S., basing our research in China allows us to examine whether findings from previous studies can be applied in a rapidly developing economy, with a non-Western national culture. The culture in China is different from that in the west (e.g. U.S.) (Hofstede, 1983, 1984), particularly in terms of power distance, which is much higher in China than in the west. In high power distance cultures, power is more likely to influence others. Some managerial issues may be different in Chinese culture, for example, in China’s high power distance culture, the people have strong belief in knowledge and authority and the companies may tend to accept their partners’ expert and referent power without suspicion about the authority of the power sources. Reward is usually used for many different purposes in China and its effect should be complex. So, the pattern of the influence of power on relationship commitment in China should be different from that in the West. To develop the theory of power-relationship commitment established in the West culture, this study applies it in a different culture to test its generalization ability.

Thus, based on our review of the literature on inter-firm relationships, there are few solid empirical studies that investigate the relationship between use of power, relationship commitment, and performance from a supply chain perspective, especially from both supplier and customer perspectives together. In this study, we aim to investigate this relationship. Specifically, our objectives are:

1) To develop and test a measurement instrument for power, relationship commitment, supply chain performance in a supply chain context.

2) To propose and empirically test a model that represents the relationship among power, relationship commitment, and supply chain performance in a supply chain.
3) To compare the impact of power on relationship commitment from suppliers and customers perspectives.

4) To justify and develop the power-relationship commitment theory established based on low power distance culture of the West with a context of marketing channel in a different Chinese high power distance culture with a context of SCM.

5) To offer guidelines for practicing managers to enhance supply chain performance through relationship commitment and use of power.

This study is organized as follows: we first address the theoretical background of the study with a conceptual model, proposing associated hypotheses. This is followed by discussion of the research methodology, analysis and results. Finally we summarize our major findings and present the conclusions and limitations of the study.

2. Theoretical Background and Proposed Hypotheses

Power can be defined as the ability of one channel member to influence the marketing decisions of another channel member (Brown et al., 1983, 1995, Goodman & Dion, 2001). The importance of power has been investigated in various contexts, such as, category management (Dapiran & Scott, 2003), procurement and supply management (Cox, 2001), distribution channels (Brown et al., 1983, 1995, Goodman & Dion, 2001), SCM (Benton & Maloni, 2005). Power is not a uni-dimension construct and French & Raven (1959) classified power into six types according to the power base: expert power (Source has knowledge, expertise or skills desired by the target), referent power (Target values identification with the source), traditional legitimate power (Target believes source retains natural rights to influence), legal legitimate power (Target believes source retains judiciary rights to influence), reward power (Sources retains ability to mediates rewards to target), coercion power (Source holds ability to mediates punishment to target). These types of power can be further classified into two categories (This dichotomy reflects “…. whether the source does or does not control the reinforcement which guides the target’s behavior”, Tedeschi, Schlenker and Lindskold, 1972, p.292): Mediated Power (the source of the power, decides whether, when and how to use these types of power to influence the target’s decision and behavior.) and Non-mediated power (the source of the power does not mediate the reinforcement of the power over the target).

Relationship commitment can be defined as the willingness of a party to invest resources into a relationship (Dion, Banting, Picard & Blenkhorn, 1992; Morgan & Hunt, 1994). Two types of relationship commitment named normative relationship commitment and instrumental relationship commitment were identified in the paper of Brown, et al, (1995). Normative relationship commitment can be defined as willingness to secure the relationship due to its identification with and emotional attachment to the goals and values of another party (Morgan & Hunt, 1994; Wetzels, et al., 1998). Instrumental relationship commitment is based on compliance (driven by rewards or punishment, etc.) and distinct from normative commitment. (Brown et al., 1995).

Based on the literature reviewed and an in depth interviews with more than 15 practitioners who are in charge of SCM in China, we propose the following theoretical framework for power and relationship commitment in SCM. Within this framework, we have included the following theoretical constructs: (1) supplier/customer’s use of expert power. (2) supplier/customer’s use of referent power. (3) supplier/customer’s use of legitimate power. Expert, referent, and legitimate power can be looked as non-mediated power are more relational and positive in power orientation. (Brown et al., 1995, Maloni & Benton, 2000) (4) supplier/customer’s use of reward power. (5) supplier/customer’s use of coercive power. Reward and coercive power can be looked as mediated power that involves influence strategies that the source (buyer) specifically administers to the target (seller). The intention is to bring about some direct action. Mediated bases represent the competitive and negative uses of power traditionally associated with organizational theory (Brown et al., 1995, Maloni & Benton, 2000) (6) Manufacturer’s normative relationship commitment to the supplier/customer. Normative relationship commitment refers to one member’s identification with another member and its internalization of common norms and values with another member (Brown, et al. 1995). (7) Manufacturer’s instrumental relationship commitment to the supplier/customer. Instrumental relationship commitment is based on compliance (driven by rewards or punishment, etc.) and distinct from normative commitment (Brown, et al. 1995). (8) Supply chain performance. It measures the operational performance of the whole supply chain.

Considering the relationship between power and relationship commitment, Goodman and Dion (2001) argued power was becoming one of the important determinants of relationship commitment in the distributor-manufacturer
relationship. Brown et al. (1995) empirically investigated the impact of power and relationship commitment on marketing channel member’s performance from relationship marketing perspective. Using data collected from retailers of farm equipment, they found that the supplier's use of power significantly influenced the retailer’s commitment to the channel relationship, and the commitment significantly influenced the perceived performance of the supplier, and subsequently the financial performance of the retailer. They found that the supplier’s use of non-mediated bases of expert, referent, and legitimate power positively influence retailer’s normative relationship commitment, but negatively influence the retailer’s instrumental relationship commitment (not significant). Supplier’s use of mediated power such as reward and coercion power negatively influences the retailer’s normative relationship commitment, but positively influence the retailer’s instrumental relationship commitment.

The use of non-mediated power was found to enhance the positive attitudes towards channel relationship (Frazier & Summers, 1986) and fosters the congruency in the values and norms between channel members. If the suppliers/customers have many experts, the manufacturers will look the suppliers/customers as the leader of the industries, so the manufacturers will be likely to commit to the relationship with the suppliers/customers. Therefore, the use of expert, referent and legitimate power will leads to higher degree of normative commitment between the partners (Brown et al., 1995). At the same time, the more one partner uses non-mediated power to influence the other, the more it focuses on common norms and values as well as the relationship itself. “As these intrinsic factors become central, extrinsic factors such as rewards and punishments become less important” (Brown et al., 1995, p.368). Therefore the use of non-mediated power by the supplier/customer decreases the degree of instrumental relationship commitment by the manufacturer.

Frazier et al. (1989) presented that strong channel members are less likely to use non-mediated power. If a more powerful company uses non-mediated power, the power target partner will accept the positive-oriented power and commit greatly to the relationships with the power source. At the same time, the partner will also decrease their negative instrumental relationship commitment to the companies. When non-mediated power is used by the less powerful supplier, the manufacturer may be too arrogant to commit to the relationship. This is true in the real business world, for example, the small companies’ voice is hard to be heard by their big powerful partners. That means the more powerful customer’s use of non-mediated power is more effective than the less powerful supplier’s use of non-mediated power to influence the manufacturer’s relationship commitment. So, we propose the following hypotheses:

H1a/b: The higher use of expert power by the supplier/customer will lead to a stronger normative relationship commitment to the supplier/customer by the manufacturer.

H1c: The strength of the impact of customer’s use of expert power on manufacturer’s normative relationship commitment is higher than supplier’s use of expert power.

H2a/b: The higher use of referent power by the supplier/customer will lead to a stronger normative relationship commitment to the supplier/customer by the manufacturer.

H2c: The strength of the impact of customer’s use of referent power on manufacturer’s normative relationship commitment is higher than supplier’s use of referent power.

H3a/b: The higher use of legitimate power by the supplier/customer will lead to a stronger normative relationship commitment to the supplier/customer by the manufacturer.

H3c: The strength of the impact of customer’s use of legitimate power on manufacturer’s normative relationship commitment is higher than supplier’s use of legitimate power.

H4a/b: The higher use of expert power by the supplier/customer will lead to a lower instrumental relationship commitment to the supplier/customer by the manufacturer.

H4c: The strength of the impact of customer’s use of expert power on manufacturer’s instrumental relationship commitment is higher than supplier’s use of expert power.

H5a/b: The higher use of referent power by the supplier/customer will lead to a lower instrumental relationship commitment to the supplier/customer by the manufacturer.
H5c: The strength of the impact of customer’s use of referent power on manufacturer’s instrumental relationship commitment is higher than supplier’s use of referent power.

H6a/b: The higher use of legitimate power by the supplier/customer will lead to a lower instrumental relationship commitment to the supplier/customer by the manufacturer.

H6c: The strength of the impact of customer’s use of legitimate power on manufacturer’s instrumental relationship commitment is higher than supplier’s use of legitimate power.

When the supplier/customer uses the reward and coercive power, the supplier/customer provides extrinsic motivation for the manufacturer’s commitment to the customer and the manufacturer will be driven to comply with the customer’s requirements in order to achieve favorable outcomes. Therefore we would expect that the use of the mediated power by the customer would foster a stronger instrumental relationship commitment by the manufacturer (Kasulis & Spekman, 1980, Brown et al., 1995). However, the frequent use of mediated power can damage the relational norms (Boyle et al., 1992), cooperation (Skinner, Gassenheimer & Kelley 1992) and reduce the strength of the relationship between the partners in the supply chain (Benton & Maloni, 2005, Maloni & Benton, 2000). Therefore we would expect the use of the mediated power by the customer would decrease the normative relationship commitments.

More powerful companies more frequently use mediated power (Gundlach & Cadotte, 1994) and the impact of power on relationship commitment is more effective. In a supply chain, the customer is usually more powerful than the manufacturer and the supplier is usually less powerful than the manufacturer, so, the more powerful customer’s use of mediated power will enhance manufacturer’s instrumental commitment more greatly than the less powerful supplier’s use of mediated power. At the same time, supplier/customer’s use of mediated power also increases the strength of the impact of mediated power on the manufacturer’s normative commitment. The less powerful supplier’s use of mediated power can be used as a threat or being meaningless. Perceiving the mediated power used by the subordinative partners, the manufacturer will be angry and commit nothing or in the opposite direction to their relationships between them. Based on the above discussion, we propose the following hypotheses:

H7a/b: The higher use of reward power by the supplier/customer will lead to a lower normative relationship commitment to the supplier/customer by the manufacturer.

H7c: The strength of the impact of customer’s use of reward power on manufacturer’s normative relationship commitment is higher than supplier’s use of reward power.

H8a/b: The higher use of coercive power by the supplier/customer will lead to a lower normative relationship commitment to the supplier/customer by the manufacturer.

H8c: The strength of the impact of customer’s use of coercive power on manufacturer’s normative relationship commitment is higher than supplier’s use of coercive power.

H9a/b: The higher use of reward power by the supplier/customer will lead to a stronger instrumental relationship commitment to the supplier/customer by the manufacturer.

H9c: The strength of the impact of customer’s use of reward power on manufacturer’s instrumental relationship commitment is higher than supplier’s use of reward power.

H10a/b: The higher use of coercive power by the supplier/customer will lead to a stronger instrumental relationship commitment to the supplier/customer by the manufacturer.

H8c: The strength of the impact of customer’s use of coercive power on manufacturer’s instrumental relationship commitment is higher than supplier’s use of coercive power.

Relationship commitment can help improve the performance of the whole supply chain. With relationship commitment, the manufacturers are more likely to invest in the relationships with their partners and to cooperate them. Having a close relationship with their partners, the companies in a supply chain can communicate, share information and cooperate with each other effectively and the conflicts and opportunistic behaviors in the trades are reduced, as a result, supply chain performance is improved. Because normative relationship commitment is more positive, its impact
on supply chain performance should be stronger than instrumental relationship commitment which is negatively based. So, we proposed those hypotheses:

\[ H11a/b: \text{Normative relationship commitment to the supplier/customer by the manufacturer will have a significant positive impact on supply chain performance.} \]

\[ H12a/b: \text{Instrumental relationship commitment to the supplier/customer by the manufacturer will have a significant positive impact on supply chain performance.} \]

\[ H13a/b: \text{Normative relationship commitment to the supplier/customer by the manufacturer will have a much stronger impact on supply chain than the instrumental relationship commitment.} \]

The proposed hypotheses are summarized in the model shown in Figure 1. The key constructs and the associated measurements items are shown in Appendix 5. The design of the measurement items will be discussed in the next section.

![Fig. 1 Proposed model](image)

### 3. Research Methodology

#### 3.1 Sampling and Data Collection

To test the above hypotheses, we collected data from manufacturing companies in China. We used random sampling to collect the data. Because China is a large country, we strategically selected five cities with different economic development stages representing the whole economy of China - Chongqing, Tianjin, Guangzhou, Shanghai, and Hong Kong—as our target samples. The strategic selection should capture different economic development stages in today’s China.

To obtain a representative sample of manufacturing companies, we used the Yellow Pages of China Telecom in each of the four selected cities in mainland China and the Directory of the Chinese Manufacturers Association in Hong Kong.
as the sampling pool to get a representative sample of manufacturing companies. We randomly selected companies on the lists and contacted them through telephone calls. These companies represent a wide variety of industries. After the sampling frame was decided, the mail survey method was used to collect the data. Before we launched the full-scale study, we pilot-tested the questionnaire using a sample of 15 companies.

After consulting with supply chain executives, we determined that the best method was to obtain one key informant who is knowledgeable about the SCM within the manufacturing companies. After this telephone call, we mailed the questionnaire with a cover letter highlighting the objectives and the potential contributions of the study to the identified informants. Self-addressed, and stamped envelopes were also sent together with the survey to facilitate the returning of the completed questionnaires. Both follow-up telephone calls and follow-up mailings were used to improve the response rate. Follow-up letters were also sent if the respondent could not find the questionnaire that we sent to them earlier. If there are excessive missing data, respondents were contacted by phone to clarify missing data in their responses.

Some non-sampling errors can arise from design, reporting, and processing errors as well as from errors due to faulty response or non-response. The questionnaire is designed and checked carefully to be as clear as possible for the respondents. When the respondents meet problems on answering the questions in the questionnaire, explanation is provided by the people who conduct the survey. Respondents are encouraged to give the true information by promised keeping the secret information from others. Some reversed items are also used to check for the errors.

Out of 4569 companies contacted, a total of 1356 questionnaires were sent out, and 617 returned questionnaires were usable. The response rate based on the number of companies contacted via telephone is 13.5% and 45.5% based on the number of questionnaire sent out. This high response rate can be attributed to our targeted sampling process, telephone contacts, and follow-up mailings. We evaluated non-response bias by comparing the early and late replies to all variables using t-test (cf. Handfield & Bechtel, 2002; Stank et al., 2001). No significant differences were found, which suggests non-response bias might not be a big problem in this study.

3.2 Questionnaire Design

The measurement items for expert, referent, legitimate, reward and coercive power were mainly adopted from Brown et al. (1995). One point to note is that measurement items for legitimate power are all related to the natural right of the supplier/customer to influence the manufacturer and no items were designed to measure the power based on the judicial or legal right to influence the manufacturer. Through our interview of the manufacturers, we found that legal legitimate power is not concerned very much by the suppliers/customers of the manufacturers. So, only traditional legitimate power is used in our study. In our study, respondent were asked to indicate the degree of agreement with the statements concerning the use of the power by the major customer using a likert scale of 1 to 7 where “1” indicates “Strongly agree” and “7” indicates “strongly disagree” with the statement. Each of the power constructs was measured using three or four measurement items. The measurement items for relationship commitment were adopted from Brown et al. (1995). Normative commitment can be reflected by the manufacturer’s identification with the customer and the manufacturer’s internalization of the customer’s norms and values. Brown et al. found the measurements items for identification and internalization merged into one factor: normative relationship commitment. We used a total of six items for identification and internalization to measure normative relationship commitment (NRC). Instrumental relationship commitment (IRC) was measured using three measurement items that were found to be valid by Brown et al. (1995). The 7-likeit scale is also is used to measure the extent of agreement of the respondents for relationship commitment. The scale of supply chain performance, measured by five items, is similar to the one used by Stank et al. (2001). The items used in this study are listed in Appendix A.

4. Analyses and Results

From EFA results, we find that all the measurement items have large loadings on the construct that they are supposed to measure, and much lower loading on the construct that they are not supposed to measure. This indicates the uni-dimensionality of the constructs. The Cronbach alpha values of the constructs are shown in Table 1. The alpha values of all the constructs are above 0.80 except two instrumental relationship commitment constructs of 0.667 and 0.694 respectively. Which are still above the lower limit of 0.60 suggested by Flynn et al. (1990) and Nunnally (1994) for newly developed scales. Although these scales were initially developed by Brown, et al. (1995), they had previously been applied only in Western countries. Thus, we applied the criterion for newly developed scales in China, finding that
our measurements were unidimensional and reliable.

<table>
<thead>
<tr>
<th>Construct</th>
<th>No. of questions</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer’s Use of Expert Power</td>
<td>4</td>
<td>.813</td>
</tr>
<tr>
<td>Customer’s Use of Referent Power</td>
<td>3</td>
<td>.875</td>
</tr>
<tr>
<td>Customer’s Use of Legitimate Power</td>
<td>4</td>
<td>.825</td>
</tr>
<tr>
<td>Customer’s Use of Reward Power</td>
<td>3</td>
<td>.803</td>
</tr>
<tr>
<td>Customer’s Use of Coercive Power</td>
<td>4</td>
<td>.915</td>
</tr>
<tr>
<td>Supplier’s Use of Expert Power</td>
<td>4</td>
<td>.803</td>
</tr>
<tr>
<td>Supplier’s Use of Referent Power</td>
<td>3</td>
<td>.873</td>
</tr>
<tr>
<td>Supplier’s Use of Legitimate Power</td>
<td>4</td>
<td>.892</td>
</tr>
<tr>
<td>Supplier’s Use of Reward Power</td>
<td>3</td>
<td>.903</td>
</tr>
<tr>
<td>Supplier’s Use of Coercive Power</td>
<td>3</td>
<td>.942</td>
</tr>
<tr>
<td>Normative Relationship Commitment to Customer</td>
<td>6</td>
<td>.897</td>
</tr>
<tr>
<td>Instrumental Relationship Commitment to Customer</td>
<td>3</td>
<td>.667</td>
</tr>
<tr>
<td>Normative Relationship Commitment to Supplier</td>
<td>6</td>
<td>.922</td>
</tr>
<tr>
<td>Instrumental Relationship Commitment to Supplier</td>
<td>3</td>
<td>.694</td>
</tr>
<tr>
<td>Supply Chain Performance</td>
<td>5</td>
<td>.845</td>
</tr>
</tbody>
</table>

In the convergent validity test, we construct a CFA model using LISREL program. In the model, each item is linked to its corresponding construct, and the covariances among those constructs are freely estimated. The model fit indices are Chi-Square = 4096.17 with Degrees of Freedom = 1547, RMSEA=0.054, NNFI=0.97, CFI=0.97, Standardized RMR=0.050. These indices indicate that the model is acceptable (Hu and Bentler, 1992). Furthermore, a construct with either loading of indicators of at least 0.5, a significant t-value (t>2.0), or both, is considered to be convergently valid (Fornell & Larcker, 1981; Chau, 1997). In our model, all factor loadings are greater than 0.50 and all t-values are greater than 2.0. Therefore, the convergent validity is achieved in our study. In discriminant validity test, most of the difference is significant at 0.01 significance level. In criterion-related validity test, the scales were correlated with supply chain performance measures, most of the correlation coefficients are significant. Therefore, in our study, convergent validity, discriminant validity, and criterion-related validity are achieved.

The structural model was built on the modified measurement models using Maximum Likelihood estimation method. In structural equation modeling, there is no single test of significance that can absolutely identify a correct model given the sample data (Schumacker & Lomax, 1996). Much goodness of fit criteria has been established to assess the model. Several authors recommended a number of indices to assess model fit (Bentler 1992; Garver & Mentzer, 1999, Cheung & Rensvold, 2001). This paper presents and discusses a number of fit indices with the results. The good of fitness indices for our model are Chi-Square = 4522.61 with Degrees of Freedom = 1583, RMSEA=0.057, NNFI=0.96, CFI=0.96, Standardized RMR=0.069. These indices are better than the threshold values suggested by Hu and Bentler (1992). In particular, Cheung and Rensvold (2001) argued that more complex models should be evaluated using lower cut-off values, and simpler models should be evaluated using higher cut-off values. Therefore, our model can be accepted. Figure 2 shows the modified structural equation model and the standardized coefficients for the significant paths at a 0.05 significance level.

From the results in Figure 2, we can see that both suppliers’ and customers’ use of expert power have significant, positive impact on normative relationship commitment, indicating that the use of this type of non-mediated power by the suppliers/customers enhances the manufacturer’s commitment to the suppliers/customers due to identification and internalization of suppliers/customers’ norms and values. Therefore support H1a, and H1b. For referent power and legitimate power, only customers’ use of referent power has a significant influence on normative relationship commitment to the customer. H2b is supported by the data. Only customers’ use of legitimate power has the significant negative impact on instrumental relationship commitment. Therefore support H6b. This result does not support the negative relationship between non-mediated power and the instrumental relationship commitment that we have hypothesized in hypotheses H4a/b, H5a/b, and H6a.

The path coefficient in Figure 2 also shows that reward power have relatively high positive significant impact on normative relationship commitment and instrumental relationship commitment, thus H7a/b is not supported, but H9a/b is supported. Coercive power has significant negative impact on normative relationship commitment, but only the
customer’s use of coercive power have a positive impact on instrumental relationship commitment, thus supporting H8a/b and H10a/b. Comparing the equal coefficients constrained model with the unconstrained model, we find that the some coefficients were significantly different from each other, indicating that the strength of the impact of customers’ use of referent power, reward power, and coercive power on normative relationship commitment is higher than the suppliers’, therefore, supporting H2c, H7c and H8c. The strength of the impact of customers’ use of legitimate power and coercive power on instrumental relationship commitment is higher than suppliers’, thus, supporting H6c and H10c.

Figure 2 also shows that only normative relationship commitment can improve supply chain performance, but the relationship between instrumental relationship commitment and supply chain performance is insignificant, So, only H11a/b and H13a/b are supported.

Fig. 2 Structural equation model

5. Discussion and Managerial Implications

5.1 The Relationship Between Relationship Commitment and Supply Chain Performance

Our model shows that manufacturers’ normative relationship commitment to both suppliers and customers has significant and positive influence on supply chain performance. This means that normative relationship commitment is helpful to enhance the performance of the whole supply chain. The manufacturers’ normative relationship commitment to the supplier and the customer improves the cooperation between them and the manufacturer is more likely to response to the requirements of the supplier or the customer because the manufacturer identifies and internalizes with the value and norms of the supplier and the customer. With the similar values and norms, the companies in the supply chain can work together to enhance the speed, flexibility, efficiency, and customer service of the whole supply chain.

However, the manufacturer’s instrumental relationship commitment to supplier or customer has no significant effect
on supply chain performance. This is because the manufacturer to commit to the relationships calculatively based on instrumental relationship commitment. The supplier and the customer also spend resources on managing the manufacturer’s opportunism behavior. So, it is hard for them to cooperate within the supply chain. This finding is supported by previous studies. For example, Gounaris (2005) also found that calculative relationship commitment had no impact on customer retention or investment intention and Brown, et al. (1995) found a negative relationship between instrumental relationship commitment and performance.

Normative relationship commitment is much more effective than instrumental relationship commitment in enhancing supply chain performance. In order to achieve better supply chain performance from a long-term perspective, manufacturers should strive to improve normative relationship commitment to increase cooperative behaviors and reduce conflicts between partners. Though much literature confirmed the complementarity of contractual and relational governance in supply systems (e.g. Poppo & Zenger, 2002), manufacturers still try to restrain from the use of instrumental relationship commitment because that it has no effect on supply chain performance and it may damage the shared values and norms of the companies from a long-term view.

5.2 How do Suppliers Use Power to Influence Manufacturers’ Relationship Commitment?

The findings from the results of the model reveal the mechanism of power-relationship commitment theory in China from a SCM perspective. Our model shows that the use of power by suppliers will significantly influence relationship commitment to the suppliers. Among three types of non-mediated power, only suppliers’ use of expert power has significant influence on the manufacturer’s relationship commitment to the suppliers. Expert power is the most important non-mediated power for the suppliers to influence the manufacturers. If the suppliers show their expertise, skills, or experience on their products or services to the manufacturers, the manufacturers will trust the suppliers and commit to them in a normative way. However, as the customers of the suppliers, the manufacturers are more powerful and they will also commit to the relationship calculatively when the supplier shows their expert power, especially, in case that the manufacturer are not familiar with the products or services (such as cost, quality, etc.) provided by the suppliers. Therefore, the supplier’s use of expert power also enhances the manufacturer’s instrumental relationship commitment.

It is interesting that suppliers’ use of reward power has positive significant impacts on both normative and instrumental relationship commitment. On one hand, as one type of mediated power, suppliers’ use of reward power will improve manufacturers’ instrumental relationship commitment. On the other hand, reward power also enhances manufacturers’ normative relationship commitment. This may be for that reward power is used for different purposes to influence others in China. When suppliers use coercive power to influence manufacturers, the manufacturers’ normative relationship commitment is reduced. But the impact of suppliers’ use of coercive power on instrumental relationship commitment is insignificant. The less powerful suppliers’ use of coercive power may be ignored by the more powerful manufacturers, so it has no effect on the manufacturers’ instrumental relationship commitment. Given the strong, positive impact of normative relationship commitment on supply chain performance, the supplier should be refrained from the use of coercive power in the relationship. However, the finding that reward power improves normative relationship commitment contradicts with Brown et al., (1995)’s findings that mediated power decreased normative relationship commitment. This contradicting finding might be caused by the cultural differences between China and the United States (Hofstede, 1983, 1984), particularly in terms of power distance, which is much higher in China than in the U.S. In Chinese high power distance culture, on one hand, as in the West, reward power brings instrumental relationship commitment of the partners. On the other hand, it also improves normative relationship commitment because rewards are likely to enforce the power targets’ identification of the sources’ values. The different roles of reward power in China develop the power-relationship commitment theory established in the west-based literature. These findings also provide special insights into the power-relationship commitment theory in China. To confirm our interpretation of these findings, future cross-cultural studies should be carried out to examine the moderating effect of national culture on the relationship between power and relationship commitment.

Our model shows that suppliers should emphasize on the use of expert power to enhance normative relationship commitment. With increased normative relationship commitments, supply chain performance is improved. The use of coercive power by the customer will be ineffective or producing negative effects on manufacturers’ relationship commitment and thus not able to improve performance.
5.3 How do Customers Use Power to Influence Manufacturers’ Relationship Commitment?

Our model also shows that the use of power by customers will significantly influence manufacturers’ relationship commitment to the customers. For non-mediated power, the customers’ use of expert power and referent power have the significant, and positive significant impacts on manufacturers’ normative to the customers, but have no impact on the instrumental relationship commitment. When the manufacturers perceive customers to have expert and referent power over them, they tend to accept them without suspicion about the authority of the power sources. Therefore these types of power improve normative relationship commitment, but don’t influence instrumental relationship commitment. In other words, the expert and referent power that the customers have over the manufacturers can enhance the manufacturers’ commitments in normative and refrain from the instrumental ways. The strong impact of expert power on normative relationship commitment also indicates the fact that Chinese people have strong believed in knowledge and authority. The referent power did not have significant impact on instrumental relationship commitment. The relative lower impact of referent power on normative relationship commitment and insignificant impact on instrumental relationship commitment show that referent power play less important role than expert power in the inter-firm relationships between manufacturers and customers in China. Customers’ use of legitimate power has no significant impact on manufacturers’ normative relationship commitment to the customers, but has negative impact on instrumental relationship commitment to the customers. This may be for that Chinese companies don’t likely to use legitimate power to influence other companies.

Expert power is the most important power in influencing the normative commitments among the three types of non-mediated power studied. Therefore customers should work hard to enhance their expert power by hiring knowledgeable people and better managing and utilizing their expertise and skills to influence their suppliers. Customers can also enhance normative relationship commitment by using expert and/or referent power. Legitimate power is not much encouraged to be used by the customers to influence the manufacturers because there is no significant relationship between it and normative relationship commitment.

When the customers use coercive power to influence the manufacturers, the manufacturer’s instrumental relationship commitment is enhanced, while the normative relationship commitment is reduced. This finding shows that punishment plays a significant role in improving the instrumental relationship and decreasing the normative relationship commitment between the manufacturers and the customers. The customer should be refrained from the use of coercive power in the relationship. Like the supplier’s use of reward power, customers’ use of reward power has positive significant impacts on both normative and instrumental relationship commitment. It is interesting that coercive power has a negative impact on normative relationship commitment, but reward power has a positive impact on normative relationship commitment since both reward and coercive power are mediated power. This may reflect the Chinese tend to use positive feedbacks to encourage the others to commit to their values and norms, and use negative feedback to regulate and manage the calculative relationships commitment to them.

Our model shows that customers should emphasize on the use of non-mediated power such as expert and referent power to enhance normative relationship commitment. With increased normative relationship commitments, supply chain performance is improved. The use of coercive power by the customer will be ineffective or producing negative effects on the manufacturer’s relationship commitment and thus not able to improve performance. Reward power should be used carefully because that it plays different roles in influencing normative and instrumental relationship commitment. Partners within the supply chain must understand the effects of different types of power, and should selectively build or exercise their power in order to enhance relationships and improve performance of the whole supply chain.

5.4 The Differences Between Suppliers’ Use of Power and Customers’ Use of Power

Though comparing the structure of customers’ use of power and suppliers’ use of power, we found that customers and suppliers use the similar five types of power to influence the manufacturers’ relationship commitment in China. However, the use of different types of power by the suppliers and the customers has different impacts on the manufacturer’s two types of relationship commitment. It is interesting to compare the impacts of customers’ use of power on the manufacturer’s relationship commitment to the customer and the impacts of the supplier’s use of power on the manufacturer’s relationship commitment to the supplier.

For the similarity, both suppliers’ and customers’ use of expert power and reward power are very important in
improving manufacturers’ normative relationship commitment. The suppliers’ and customers’ use of referent power has no impact on manufacturers’ instrumental relationship commitment. Suppliers’ and customer’s use of reward power can enhance both normative and instrumental relationship commitment greatly. Both suppliers’ and customer’s use of coercive power decrease normative relationship commitment.

Suppliers’ use of expert power is more effective to influence both types of relationship commitment of the manufacturers than customers. The less powerful supplier’s use of expert power (Standardized coefficient: 0.51) is more effective than the more powerful customer’s use of expert power (Standardized coefficient: 0.35) to enhance the manufacturers’ normative relationship commitment. It is because that the less powerful suppliers’ use of expert power is unexpected by the more powerful manufacturer. So, the manufacturer will commit to their relationship with the supplier highly. However, the more powerful manufacturer still commit to the less powerful supplier’s use of expert power in an instrumental way.

Among all the four relationships between suppliers/customers’ use of referent power and manufacturers’ two types of relationship commitment, only the customer’s use of referent power has a significant positive impact on the manufacturer’s normative relationship commitment. This may be for that the manufacturer admires the way the powerful customer run their company and the manufacturer wants to learn from the customer. However, the less powerful supplier’s use of referent power is ignored by the relatively high powerful manufacturer.

The legitimate power used by the customers has a significant negative influence on manufacturers’ instrumental relationship commitment. In Chinese high power distance culture, the less powerful manufacturer is more likely to adopt the suggestion or orders of the powerful customers. The manufacturer believes that the powerful customer takes higher position than them, it is a natural way to trust the customer and follow the customer’s orders.

Reward power plays the complicated roles in the culture of Chinese. In high power distance environment, the supervisors are more likely to use reward to incite the subordinate and to use punishment to control the subordinate. The powerful customer’s use of reward power (Standardized coefficient: 0.37) is more effective than the less powerful supplier’s use of reward power (Standardized coefficient: 0.24) to enhance the manufacturers’ normative relationship commitment. Considering the special role of reward power, it should be used carefully because that reward power may be used for different purposes in China.

The powerful customer’s use of coercive power (Standardized coefficient: 0.16) is more effective than the less powerful suppliers’ use of coercive power (insignificant) to enhance the manufacturers’ instrumental relationship commitment. Furthermore, the powerful customers’ use of coercive power (Standardized coefficient: -0.26) is more effective than the less powerful suppliers’ use of coercive power (Standardized coefficient: -0.20) to reduce the manufacturer’s normative relationship commitment.

Overall, except for the use of expert power, the more powerful customers’ use of power is equal or more effective than the less powerful supplier’s use of power to influence the manufacturers’ relationship commitment. Partners within the supply chain must understand the effect of different types of power, and should selectively exercise their power, in order to enhance relationship commitment and improve performance.

6. Conclusions and Limitations

From both suppliers’ and customers’ perspectives, our study is the first to propose and validate a holistic model of the relationship between power, relationship commitment, and supply chain performance in the supply chain context based on the data collected from manufacturers in China. China’s manufacturing industries are growing rapidly, and our findings provide significant managerial implications for supply chain practitioners and researchers to execute power and relationship commitment in managing supply chain relationships. This study makes significant contributions to SCM and relationship management literature and the practices of SCM in China. We demonstrate how the use of different types of power would influence the different types of commitment in supply chains. We also find that normative relationship commitment is strongly related to supply chain performance, clearly showing the importance of managing supply chain relationships. Therefore, this study establishes the link between power-relationship commitment theory and SCM.

This study justifies and extends power-relationship commitment theory established in the West’s marketing channel
area in Chinese culture and Chinese SCM area. We found that some of the relationships between power and relationship commitment and the relationship between commitments and performance in China are different from those reported by Brown et al. (1995) based on studies using data from the U.S.A. For example, while Brown et al. reported that mediated power has negative impact on normative relationship commitment, we found that reward power has positive impact on normative relationship commitment as well as instrumental relationship commitment. We speculated that these differences might be cause by the differences in culture between china and USA. Further studies are needed to examine the cross-cultural differences in the relationships between power, relationship commitments, and performance.

Although this study makes significant contributions to both academia and practice, there are several limitations which open up venues for further research. First, we used cross-section data in this study to test the proposed model. Logitudinal data may provide more insights into the relationship between use of power and relationship commitment. Second, while this study has a wide representation of the industry types, it might be interested to focus on two industries and do an in-depth comparison. In different industries, the relative power between the manufacturer and the supplier/customer might be different and therefore the relationship between power, relationship commitments and supply chain performance will be different. Third, this study did not examine the impact of power asymmetry on the relationships between power, relationship commitment, and performance. Based on results reported by Brown et al. (1995), power asymmetry may moderate some of these relationships and thus should be investigated in future studies. Fourth, besides power, many other factors, such as contract, environmental uncertainty and other inter-organizational relationships (e.g. specific asset, dependence, trust), may also influence two types of relationship commitment. Future studies should seek more drivers of relationship commitment and examine their impact. Finally, we only used data from China to develop and test the model and we also used established and new scales together for the constructs. For example, though it is acceptable for the use of the items of instrumental relationship commitment in a new context with a relatively low Cronbach’s alpha, future studies may explore the scale of the construct to provide a deeper understanding of it in China. Validating this finding in another country would be another extension of this study in the future. Furthermore, because culture may have a significant influence on the role of power and relationship commitment in inter-firm relationships, this study should be extended to examine the moderating effect of culture on the relationships, and to investigate the difference of the constructs and relationships among them in different cultures.

Appendix A. Measurement Items

Customer’s Use of Expert Power
CEXP1: The people in the customer’s organization knew what they are doing.
CEXP2: We usually got good advice from our major customer.
CEXP3: The customer had specially trained people who really knew what had to be done.
CEXP4: Our major customer’s business expertise made them likely to suggest the proper thing to do.

Customer’s Use of Referent Power
CREF1: We really admire the way our major customer runs their business, so we tried to follow their lead.
CREF2: We generally wanted to operate our company very similar to the way we thought the major customer would.
CREF3: Our company did what the customer wanted because we have very similar feelings about the way a business should be run.
CREF4: Because our company is proud to be affiliated with the major customer, we often did what they asked. *

Customer’s Use of Legitimate Power
CLEG1: It was our duty to do as the major customer requested.
CLEG2: We had an obligation to do what the major customer wanted, even though it wasn’t a part of the contract.
CLEG3: Since they were the customer, we accepted their recommendations.
CLEG4: The major customer had the right to expect us to go along with their request.

Customer’s Use of Reward Power
CREW1: If we did not do what as the major customer asked, we would not have received very good treatment from them. *
CREW2: We felt that by going along with the major customer, we would have been favored on some other occasions.
CREW3: By going along with the major customer’s requests, we avoided some of the problems other suppliers face.
CREW4: Our major customer often rewarded us to get our company to go along with their wishes.

Customer’s Use of Coercive Power
CCOE1: The major customer’s personnel would somehow get back at us if we did not do as they asked and they would have found out.
CCOE2: The major customer often hinted that they would take certain actions that would reduce our profits if we did not go along with their requests.
CCOE3: The major customer might have withdrawn certain needed services from us if we did not go along with them.
CCOE4: If our company did not agree to their suggestions, the major customer could have made things more difficult for us.

Supplier’s Use of Expert Power
SEXP1: The people in the supplier’s organization knew what they are doing.
SEXP2: We usually got good advice from our major supplier.
SEXP3: The supplier had specially trained people who really knew what had to be done.
SEXP4: Our major supplier’s business expertise made them likely to suggest the proper thing to do.

Supplier’s Use of Referent Power
SREF1: We really admire the way our major supplier runs their business, so we tried to follow their lead.
SREF2: We generally wanted to operate our company very similar to the way we thought the major supplier would.
SREF3: Our company did what the supplier wanted because we have very similar feelings about the way a business should be run.
SREF4: Because our company is proud to be affiliated with the major supplier, we often did what they asked. *

Supplier’s Use of Legitimate Power
SLEG1: It was our duty to do as the major supplier requested.
SLEG2: We had an obligation to do what the major supplier wanted, even though it wasn’t a part of the contract.
SLEG3: Since they were the supplier, we accepted their recommendations.
SLEG4: The major supplier had the right to expect us to go along with their request.

Supplier’s Use of Reward Power
SREW1: If we did not do what as the major supplier asked, we would not have received very good treatment from them.
* SREW2: We felt that by going along with the major supplier, we would have been favored on some other occasions.
SREW3: By going along with the major supplier’s requests, we avoided some of the problems other suppliers face.
SREW4: Our major supplier often rewarded us to get our company to go along with their wishes.

Supplier’s Use of Coercive Power
SCOE1: The major supplier’s personnel would somehow get back at us if we did not do as they asked and they would have found out.
SCOE2: The major supplier often hinted that they would take certain actions that would reduce our profits if we did not go along with their requests.
SCOE3: The major supplier might have withdrawn certain needed services from us if we did not go along with them.
SCOE4: If our company did not agree to their suggestions, the major customer could have made things more difficult for us.

Normative Relationship Commitment to Customer
CNRC1: We feel that our major customer views us as being an important “team member,” rather than our being just another supplier.
CNRC2: We are proud to tell others that we are a supplier for this customer.
CNRC3: Our attachment to this customer is primarily based on the similarity of our values and those of this customer.
CNRC4: The reason we prefer this customer to others is because of what it stands for, its values.
CNRC5: During the past year, our company’s values and those of the major customer have become more similar.
CNRC6: What this customer stands for is important to our company.

Instrumental Relationship Commitment to Customer
CIRC1: Unless we are rewarded for it in some way, we see no reason to expend extra effort on behalf of this customer.
CIRC2: How hard we work for this major customer is directly linked to how much we are rewarded.
CIRC3: Bargaining is necessary in order to obtain favorable terms of trade in dealing with this customer.

Normative Relationship Commitment to Supplier
SNRC1: We feel that our major supplier views us as being an important “team member,” rather than our being just another supplier.
SNRC2: We are proud to tell others that we are a supplier for this supplier.
SNRC3: Our attachment to this supplier is primarily based on the similarity of our values and those of this supplier.
SNRC4: The reason we prefer this supplier to others is because of what it stands for, its values.
SNRC5: During the past year, our company’s values and those of the major supplier have become more similar.
SNRC6: What this supplier stands for is important to our company.

**Instrumental Relationship Commitment to Supplier**
SIRC1: Unless we are rewarded for it in some way, we see no reason to expend extra effort on behalf of this supplier.
SIRC2: How hard we work for this major supplier is directly linked to how much we are rewarded.
SIRC3: Bargaining is necessary in order to obtain favorable terms of trade in dealing with this supplier.

**Supply Chain Performance**
SCPF1: Our supply chain has the ability to quickly modify products to meet customer’s requirements.
SCPF2: Our supply chain allows us to quickly introduce new products into the markets.*
SCPF3: The length of the supply chain process is getting shorter. *
SCPF4: We are satisfied with the speediness of the supply chain process.
SCPF5: Based on our knowledge of the supply chain process, we think that it is efficient.
SCPF6: Our supply chain has an outstanding on-time delivery record.
SCPF7: The total inventory level in our supply chain is low.*
SCPF8: Our supply chain provides high level of customer services.

* Deleted items.

**References**


