

DRIVERS OF RELATIONSHIP QUALITY IN LOGISTICS OUTSOURCING IN CHINA

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Given that an increasing number of companies outsource their logistics activities to third-party logistics providers (3PLs), managing logistics outsourcing relationships has become a critical capability. Although the fundamental importance of relationship quality in supply chain relationship management has begun to be understood, it has not been investigated in the context of logistics outsourcing, especially in China. This study addresses the gap in the literature by examining the drivers of relationship quality and investigating its effect on performance in logistics outsourcing in China. We use transaction cost economics and resource dependence theory as bases of this study. Dependence on 3PL (i.e., 3PL importance and unavailability of alternatives), logistics performance and relationship characteristics (i.e., the level of information sharing, relationship length and legal contract) are hypothesized as the relationship drivers based on transaction cost economics and resource dependence theory. Findings reveal that 3PL importance, logistics performance and information sharing are positively related to relationship quality, and that relationship length and the presence of a legal contract are marginally and positively related to relationship quality. The positive influence of relationship quality on financial performance is also observed. The managerial implications of the findings are considered, and the limitations along with future research directions are discussed.

Keywords: relationship quality; logistics outsourcing; financial performance; 3PL; China

INTRODUCTION

Intensified global competition and higher customer expectations have prompted an increasing number of companies to outsource their logistics activities to third-party logistics providers (3PLs) in order to concentrate on their core competencies, save on logistics costs, and achieve competitive advantage (Qureshi, Kumar and Kumar 2007; Tian, Lai and Daniel 2008). Given that logistics services involve the movement of goods, information, and cash, as well as value-added

functions (e.g., after-sales support, customer service and reverse logistics), 3PLs play a key role in managing entire supply chains (Jayaram and Tan 2011). In recent years, the relationships between logistics users (i.e., companies that use the logistics services of 3PLs) and 3PLs have grown in importance, particularly in terms of managing supply chain relationships.

Although the logistics industry in China exhibits an annual growth rate of about 20 percent (Wang, Chu, Zhou and Lai 2008), logistics costs are very high, amounting to nearly 20 percent of the GDP compared with only approximately 10 percent of GDP in developed countries (Tian et al. 2008). Therefore, reducing logistics costs in China is crucial so that an enterprise can stay competitive (Tian et al. 2008). Effectively

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managing logistics outsourcing relationships is necessary to save on logistics transaction costs because logistics outsourcing itself may not sufficiently decrease logistics costs for companies. Building and managing closer relationships with all supply chain members (Golicic and Mentzer 2006) as well as 3PLs (Golicic and Mentzer 2006; Tian et al. 2008; Hofer, Knemeyer and Dresner 2009) is very critical to the success of a company (Morgan and Hunt 1994). Moreover, the nature of logistics outsourcing relationships has changed over the past few years (Lieb and Bentz 2005; Hofer et al. 2009), for example in terms of greater integration and more collaborative relationships. Therefore, effectively managing logistics outsourcing relationships has become more critical to the success of logistics users, particularly in China.

The logistics outsourcing literature has addressed this phenomenon, and the management of logistics outsourcing relationships has been well documented (e.g., Razzaque and Sheng 1998; Bolumole 2001; Knemeyer and Murphy 2004; Lau and Zhang 2006; Qureshi et al. 2007; Tian et al. 2008; Hofer et al. 2009; Thun 2010). However, a quick review of the literature reveals that most previous studies were conducted in the Western context and that inquiry into Chinese logistics outsourcing is limited. Zhao, Flynn and Roth (2007) called for papers on supply chain relationship management in China, and Marasco (2008) recognized the need for research on examining the nature of logistics outsourcing relationships. Given that "there is a challenge in applying western-derived theory in China, where the marketplace has not been traditionally capitalistic, and where rapid economic growth, social transition and a unique culture shape consumer behavior" (Tian et al. 2008), the management of logistics outsourcing relationships in the Chinese context therefore necessitates further exploration.

In response to the challenge issued by Zhao et al. (2007) and Marasco (2008), the present study assesses logistics outsourcing relationships by integrating existing research on interorganizational relationships, particularly supply chain relationships, to develop and test empirically a model of relationship quality in relation to the specific circumstances of logistics outsourcing in China. In the existing literature, relationship quality is used to describe the extent to which an interorganizational relationship is healthy (Athanasopoulou 2009). In this study, relationship quality is adapted to the context of logistics outsourcing and is defined as the degree to which a logistics user and its 3PL are engaged in an active and close logistics outsourcing relationship.

Although previous studies have provided empirical evidence of the critical role of relationship quality in the effective management of interfirm relationships (e.g., Athanasopoulou 2009; Ural 2009; Kuhlmeier

and Knight 2010), one question that remains unanswered is: *Under what conditions are firms likely to develop a high-quality logistics outsourcing relationship (i. e., a healthy logistics outsourcing relationship)?* To answer this question, we develop a conceptual model based on transaction cost economics (TCE) and resource dependence theory (RDT) to investigate the factors that promote or impede the development of relationship quality, as well as examine the effect of relationship quality on performance. For firms that already outsource their logistics services, the primary objective of this study is to examine the factors (related to user's dependence, logistics performance and relationship characteristics) influencing the quality of logistics outsourcing relationships. We also explore the effect of relationship quality on financial performance to elucidate the measures required for developing logistics outsourcing relationships with 3PLs.

The rest of the article is organized as follows. In the next section, the theoretical background and research hypotheses are developed, followed by a description of the research methodology and data analysis. Discussion and implications are then reported. Finally, the conclusions and limitations are presented.

THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

Logistics Outsourcing

Since the rise of 3PLs in the 1990s, logistics outsourcing has drawn considerable attention from the academic community (Razzaque and Sheng 1998). Researchers focus on three important issues:

- 1 Why outsource logistics functions, that is, identifying and examining factors that support or weaken logistics outsourcing (e.g., Razzaque and Sheng 1998; Rabinovich, Windle, Dresner and Crosi 1999; Bolumole 2001; Wilding and Juriado 2004; Lau and Zhang 2006).
- 2 What logistics functions should be outsourced (e.g., Boyson, Corsi, Dresner and Rabinovich 1999; Rabinovich et al. 1999; Wilding and Juriado 2004).
- 3 How to manage logistics outsourcing relationships (e.g., Boyson et al. 1999; Moore and Cunningham 1999; Logan 2000; Knemeyer, Corsi and Murphy 2003; Hofer et al. 2009).

This section provides an overview of previous empirical studies on managing successful logistics outsourcing relationships. A successful logistics outsourcing relationship can produce good results, such as satisfying user expectations and saving on logistics costs, among others. Early studies have examined the characteristics of successful logistics outsourcing relationships (e.g., Moore and Cunningham 1999; Van Laarhoven, Berglund and Peters 2000), whereas later

research has focused on the contributive effects of successful logistics outsourcing relationships on performance improvement (e.g., Knemeyer et al. 2003; Deepen, Goldsby, Knemeyer and Wallenburg 2008; McKone-Sweet and Lee 2009) and other relationship outcomes such as customer retention, service recovery, and so on (e.g., Knemeyer et al. 2003; Knemeyer and Murphy 2005). For example, Knemeyer and Murphy (2004) found that performance (covering asset reduction, channel and operational performances) is higher in logistics outsourcing relationships with higher levels of trust, communication and commitment. Wallenburg (2009) investigated the driving effects of proactive improvement and loyalty in a logistics outsourcing relationship. Recently, researchers have investigated some special issues concerning logistics outsourcing relationships and broader supply chain relationships, such as innovation (e.g., Panayides and So 2005; Busse 2010), information technology and information sharing (e.g., Yao, Dersner and Palmer 2009; Thun 2010; Fawcett, Allred, Fawcett and Magnan 2011), and commitment and trust (e.g., Huang, Gattiker and Schwarz 2008; Tian et al. 2008), among others. The literature suggests that trust, commitment and satisfaction are important behavioral characteristics of a successful logistics outsourcing relationship that can bring a high level of performance, and information sharing and other factors play an important role in forming a successful logistics outsourcing relationship.

Maloni and Carter (2006) suggested that extending the geographical scope of 3PL research to China is necessary. A number of empirical studies have focused on 3PL and logistics outsourcing in China (e.g., Lai, Li, Wang and Zhao 2008; Wang et al. 2008; Wang, Huo, Lai and Chu 2010). For instance, Tian et al. (2008) examined the antecedents and consequents of trust in logistics outsourcing relationships in the country and found that trust is a basic component of a logistics outsourcing relationship, and information sharing and length of relationship play important roles in building a successful logistics outsourcing relationship. However, research on Chinese logistics outsourcing remains limited.

Relationship Quality

In the existing literature, relationship quality is used to describe the extent to which a relationship is healthy. The concept was first developed to assess the relationship between a customer and a salesman (Crosby, Evans and Cowles 1990) before it was employed in interorganizational relationships (e.g., Naude and Buttle 2000). Relationship quality is currently defined as the degree to which both parties in a relationship are engaged in an active, long-term working relationship and is used to assess supply chain

relationships (Fynes, Burca and Voss 2005b). This definition is highly similar to the "relationship magnitude" construct in Golicic and Mentzer (2006), who defined the concept as the degree of closeness or strength of the relationship among organizations in the context of shipper-carrier relationships. A variety of constructs have been used to assess business relationships, including relationship quality (e.g., Naude and Buttle 2000), relationship strength (e.g., Golicic 2007), relationship magnitude (e.g., Golicic and Mentzer 2006) and relationship closeness (e.g., Barnes 1997), as well as supply chain partnerships (e.g., Lambert, Emmelhainz and Gardner 1996), among others. These constructs are not always clearly defined or distinguished from one another (Fynes, Burca and Mangan 2008). Sometimes the same term is used to refer to another idea. Moreover, the measurement of these constructs varies among researchers (Bove and Johnson 2001). Bove and Johnson (2001) suggested that "relationship quality is best used in the context of customer/buyer relationships with a firm/seller ..." (p. 193). Therefore, in this study, relationship quality is used and defined as the degree to which a logistics user and its 3PL are engaged in an active and close logistics outsourcing relationship.

Relationship quality is widely viewed as a metaconstruct composed of several components that support, reinforce and complement one another (Dwyer, Schurr and Oh 1987; Skarmeas, Katsikeas, Spyropoulou and Salehi-Sangari 2008). The conceptualization and dimensions of relationship quality have been widely investigated but with no consensus on its constituents (Skarmeas et al. 2008). However, Athanaspoulou (2009) reviewed existing literature on relationship quality from 1987 to 2007 and found that "the only area of convergence is the three major dimensions (trust, commitment and satisfaction) that have been used in many studies and have been validated in different contexts" (p. 603). Guided by our field interviews and in accordance with the relationship quality literature, we focus on trust, commitment and satisfaction as the key components of logistics outsourcing relationship quality.

Trust is one of the most frequently cited dimensions of supply chain relationships (Fynes, Voss and Burca 2005a). Trust is commonly defined as the willingness to rely on a party in whom one has confidence (Ganesan 1994). Another classical definition of trust is confidence in the reliability and integrity of the other party (Morgan and Hunt 1994). Although definitions vary slightly, credibility, benevolence and competence are typically used to operationalize trust (Fynes et al. 2005a; Tian et al. 2008). This study adapts Ganesan's (1994) definition to the logistics outsourcing context, in which trust is defined as the willingness of a logistics user to rely on his/her 3PLs in whom he/she

has confidence in creditability, competence and benevolence.

Commitment has also assumed a central role in the development of supply chain relationships (Skarmas et al. 2008). Morgan and Hunt (1994) defined commitment as a belief that a relationship is so important it warrants maximum effort to maintain. Their study suggests that commitment pertains to the intention to continue the relationship (Golicic and Mentzer 2006). Zhao, Huo, Flynn and Yeung (2008) argued that "in a supply chain, it (commitment) is an attitude of supply chain partners about the development and maintenance of a stable, long-lasting mutual relationship." This article defines commitment as the willingness to exert effort toward enhancing the relationship and to carry on with the relationship in the long term.

In previous studies, satisfaction is considered an essential part of successful relationships (Morgan and Hunt 1994; Skarmas et al. 2008). Relationship satisfaction is usually defined as the buyer's affective state resulting from an overall appraisal of his/her relationship with a supplier (Anderson and Narus 1990; De Wulf, Odekerken-Schroder and Iacobucci 2001; Barry, Dion and Johnson 2008), leading to the long-term continuation of the relationship (Barry et al. 2008; Hofer et al. 2009). The present work adapts the definition of Barry et al. (2008) to the context of logistics outsourcing. Thus, satisfaction is defined as the degree to which a logistics user is satisfied with a 3PL's overall performance in the logistics outsourcing relationship.

Our conceptualization points to the role of relationship quality in building strong logistics outsourcing relationships. Logistics users can improve their performance by developing logistics outsourcing relationships marked by trust, commitment and satisfaction (Athanasopoulou 2009). Enhancing the understanding of logistics managers on the key constituent elements of relationship quality is critical to the effective management of logistics outsourcing relationships.

Theoretical Background

A variety of theoretical frameworks have been employed in assessing interorganizational relationships, such as TCE (e.g., Fynes et al. 2008; Williamson 2008), RDT (e.g., Pfeffer and Salancik 1978; Vijayasarathy 2010), the resource-based view (e.g., Rungtusanatham, Salvador, Forza and Choi 2003), and so on. Each of these theoretical paradigms offers a unique perspective on the formation of interorganizational relationships, but none of them is complete by itself. Thus, "there is a need for consideration of multiple perspectives as new theories are developed and tested" (Barringer and Harrison 2000, p. 395). TCE and RDT are two of the most frequently used frameworks in the investigation of the formation of interfirm relationships. Cai and Yang (2008) found that a combi-

nation of these two theories could serve as a better theoretical framework in explaining the formation of interorganizational relationships. TCE's focus on cost and efficiency tends to neglect other important reasons and criteria (e.g., the perceived power of a potential partner) in the formation of an interorganizational relationship. Conversely, RDT focuses on external resources without considering transaction costs (Barringer and Harrison 2000). An integration of these two perspectives can provide an even more useful means of understanding the formation of interorganizational relationships. Thus, this study combines TCE and RDT to examine the formation of a high-quality logistics outsourcing relationship.

Transaction cost economics focuses on the role of governance in overcoming the limitations of restricted rationality and in securing economic efficiency through transaction cost reduction (Williamson 1985). Under the theoretical framework of TCE, researchers describe governance structures, namely, markets, hybrids and hierarchies, as discrete structural alternatives designed to minimize the costs required in accomplishing an economic transaction (Williamson 2008). In the literature, cooperative interfirm relationships are one of the hybrid governance structures (Fynes et al. 2008). As noted by Williamson (2008), trust and commitment play important roles in the "begin" and "credible" approaches of hybrid transactions. In accordance with this thinking, high-quality logistics outsourcing relationships characterized by high levels of trust, commitment and satisfaction can serve as a form of governance to reduce transaction costs, leading to high performance.

Conversely, RDT characterizes the corporation as an open system dependent on contingencies in the external environment (Pfeffer and Salancik 1978). This theory suggests that managers can act to reduce environmental uncertainty and dependence (Hillman, Withers and Collins 2009). The RDT perspective on interorganizational relationships shows that developing collaborative interorganizational relationships is one way to acquire resources and reduce uncertainty and dependence (Pfeffer and Salancik 1978). This viewpoint is often the most practical (Golicic and Mentzer 2005). According to RDT, a higher level of dependence often leads to a closer interorganizational relationship to manage such dependence. In accordance with this standpoint, high-quality logistics outsourcing relationships can be used to control logistics resources in an attempt to manage uncertainty and dependence of logistics users. Therefore, higher levels of dependence lead to higher relationship quality.

In summary, TCE and RDT suggest that developing a high-quality logistics outsourcing relationship is one way to reduce transaction costs and manage dependence. For the purpose of this study, the main

implication of RDT is its ability to provide an explanation for certain conditions in which high-quality logistics outsourcing relationships should be developed. The primary implication of TCE is the identification of the characteristics of logistics outsourcing relationships in which high levels of relationship quality can be developed. By combining these two theories, we present a list of key antecedents of logistics outsourcing relationship quality in the following section.

Conceptual Model

This study draws on the contributions of TCE and RDT, and examines relationship quality in the context of logistics outsourcing. As argued above, TCE implies that logistics users may develop close logistics outsourcing relationships to reduce transaction costs, whereas RDT indicates that logistics users may develop logistics outsourcing relationships to manage their dependence on 3PLs. Accordingly, we propose that factors related to transaction costs and dependence may result in the development of close logistics outsourcing relationships. TCE suggests that legal contract and information sharing are two major forms of governance in interfirm relationships (Rindfleisch and Heide 1997; Poppo and Zenger 2002). Previous literature has argued that relational governance, such as that pertaining to interfirm relationships, may be affected by legal contracts (e.g., Cannon, Achrol and Gundlach 2000; Poppo and Zenger 2002) and information sharing (Noordewier, John and Nevin 1990; Athanasopoulou 2006). Hence, the presence of a legal contract — what we refer to as *legal contract* — and

information sharing are considered determinants of logistics outsourcing relationship quality. TCE also implies that relationship history (i.e., age of the relationship) is an important driver of interfirm relationships (Golicic and Mentzer 2005). Thus, we include the length of relationship as a driver of logistics outsourcing relationship quality. In brief, according to TCE, high levels of relationship quality can be developed in a logistics outsourcing relationship with a legal contract, high levels of information sharing and long relationship history.

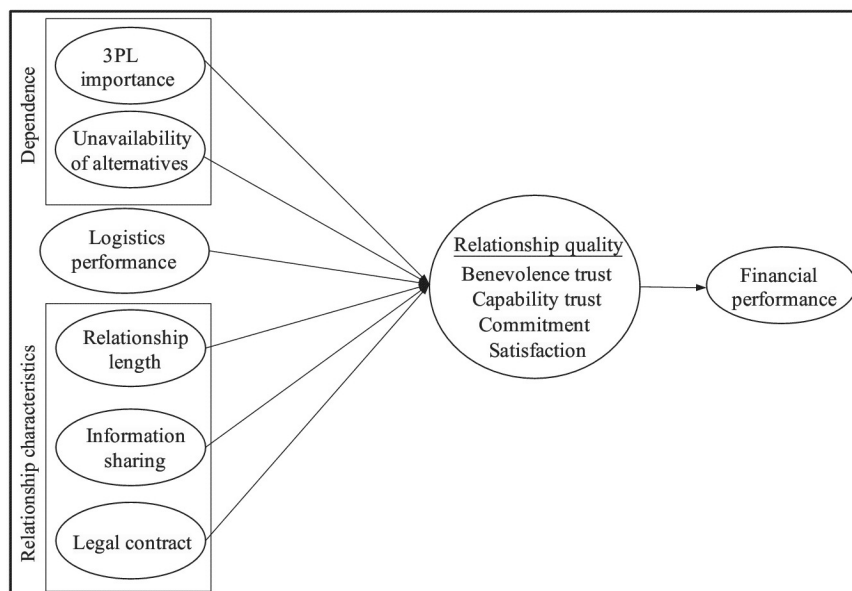
Conversely, RDT proposes that the importance of exchange partners and the availability of alternatives, as well as the importance of products/services exchanged, determine the level of dependence (Pfeffer and Salancik 1978; Handfield 1993; Cai and Yang 2008). Therefore, greater 3PL importance, higher unavailability of alternatives and/or better logistics performance more likely lead to the development of a close logistics outsourcing relationship, resulting in higher levels of relationship quality. In other words, a high-quality logistics outsourcing relationship is developed when 3PL is important and/or difficult to replace, and/or when logistics performance is good.

We further link relationship quality to performance through the conceptual model by specifying the drivers, dimensions and consequences of logistics outsourcing relationship quality, as presented in Figure 1.

Antecedents of Relationship Quality

Previous marketing studies have identified some relationship quality antecedents, such as experience and capability (Woo and Cha 2002; Rajaobelina and

FIGURE 1
Conceptual Model



Bergeron 2009), relationship benefits (Parsons 2002; Golicic and Mentzer 2005), power and interdependence (Van Bruggen, Kacker and Nieuwlaet 2005; Athanasopoulou 2008), length of relationship (Doney and Cannon 1997; Golicic and Mentzer 2005), communication (Athanasopoulou 2006), service quality (Venetis and Ghauri 2004), and so on. However, these antecedents have received little attention within the context of logistics outsourcing. Golicic and Mentzer (2005) conducted qualitative research with in-depth interviews to identify the drivers of relationship quality (relationship magnitude is used) in the logistics context. However, these drivers were not empirically examined. In this study, the TCE- and RDT-related drivers identified by Golicic and Mentzer (2005) were used as a basis for our research; they are complemented by our field interviews and are classified into three categories: dependence on 3PL, logistics performance and relationship characteristics. Dependence and logistics performance are related to RDT. Dependence refers to two factors derived from RDT: 3PL importance and unavailability of alternatives, capturing the importance of exchange partners (i.e., 3PL). Logistics performance captures the quality, value-added and overall performance of the 3PL. In summary, the variables included in dependence on 3PL and logistics performance determine the level of a logistics user's dependence on the 3PL. Relationship characteristics, which include relationship length, level of information sharing and the existence of a legal contract, are related to TCE, and they influence transaction costs in logistics outsourcing. Thus, we hypothesize that dependence on 3PL, logistics performance and relationship characteristics influence logistics outsourcing relationship quality.

Dependence. The dependence of a logistics user on a 3PL refers to the user's need to maintain the relationship to achieve the desired goals (Hofer et al. 2009). According to RDT, 3PL importance and the unavailability of alternatives are two major indicators of resource dependence (Cai and Yang 2008). The importance of 3PL refers to the financial and strategic significance of the logistics service provided by the 3PL. A higher level of 3PL importance more likely leads to the user becoming dependent on the 3PL and attempting to develop a high-quality relationship with the 3PL to manage the dependence. Cai and Yang (2008) found that supply importance is an essential antecedent of cooperative relationships. Golicic and Mentzer (2005) argued that importance is a driver of close relationships. Therefore, we introduce the following hypothesis:

H1: The importance of a 3PL is positively related to relationship quality.

As for the unavailability of alternatives, RDT suggests that dependence increases when fewer alterna-

tives or potential alternative sources of exchange are available (Heide and John 1988; Cai and Yang 2008). As logistics outsourcing is an effective way to save costs and achieve competitive advantages, the logistics user may be less likely to maintain logistics functions in-house even if fewer alternatives are available and even if there is a dependence issue. Conversely, he/she is inclined to develop a close relationship with the 3PL to ensure the availability of the logistics services to manage such dependence. Paulraj and Chen (2007) found that a limited number of suppliers are positively related to integrated logistics relationships. Cai and Yang (2008) observed that the availability of alternatives is negatively related to cooperative relationships. Thus, we hypothesize the following:

H2: The unavailability of alternatives is positively related to relationship quality.

Logistics Performance. Logistics is considered a value-added supply chain process (Stank, Keller and Daugherty 2001). Logistics performance, which is the ability to consistently deliver requested products within the requested delivery time frame at an acceptable cost (Stank, Goldsby, Vickery and Savitskie 2003), is highly important in achieving overall performance (Daugherty, Stank and Ellinger 1998). According to RDT, a logistics user is highly dependent on a logistics outsourcing relationship when logistics performance (as the direct outcome from the relationship) is significant and highly valued (Pfeffer and Salancik 1978); that is, logistics performance determines the level of dependence. Better logistics performance leads to a higher level of dependence and a higher possibility that logistics users will establish high-quality logistics outsourcing relationships. Therefore, higher logistics performance improves logistics outsourcing relationship quality. Through a qualitative study, Golicic and Mentzer (2005) identified performance and capabilities as important drivers of close relationships. Thus, we suggest the following hypothesis:

H3: Logistics performance is positively related to relationship quality.

Relationship Characteristics. Three relationship characteristic variables, considered as drivers of relationship quality in accordance with TCE, are used in this study: relationship length, level of information sharing and legal contract. Most interorganizational relationships are not necessarily strategically planned but are sometimes the result of circumstance; therefore, relationship history plays a critical role in the quality of an existing relationship. Relationship length is a proxy for relationship history, acting as a specific investment (i.e., time) in the relationship (Golicic and Mentzer 2005). TCE suggests that firms develop close relationships to safeguard specific investment; thus, a long-term relationship improves relationship quality.

Previous studies have found a positive relationship between relationship length and cooperative relationships (e.g., Joshi and Stump 1999; Cai and Yang 2008). Therefore, we hypothesize the following:

H4: Relationship length is positively related to relationship quality.

According to TCE, information sharing is an informal governance mechanism used to reduce transaction costs (Noordewier et al. 1990; Rindfleisch and Heide 1997). A high level of information sharing can reduce information asymmetry, improve decision transparency, further reduce partners' behavioral uncertainty, and aid in the collaboration of parties involved. Therefore, information sharing is critical in managing any relationship. Previous studies have established the contributive effect of information sharing on close relationships (e.g., Williams and Moore 2007; Hsu, Kannan, Tan and Leong 2008; Sezen 2008). For instance, Athanasopoulou (2006) found that the quality of information sharing between two parties positively influences relationship quality. Thus, we hypothesize:

H5: Information sharing is positively related to relationship quality.

According to TCE, a legal contract is a major interorganizational governance mechanism (Williamson 1985; Poppo and Zenger 2002). Poppo and Zenger (2002) found that a legal contract complements relational governance and contributes to exchange performance. A legal contract can explicitly define the obligations of trading partners (Cannon et al. 2000), ensuring the quality of logistics services provided and safety from opportunistic behaviors in logistics outsourcing relationships. Therefore, a detailed legal contract is required in a logistics outsourcing relationship, particularly in China, where the logistics market is still in its infancy, the level of commoditization is relatively low, and there are no widely accepted standards for all logistics players. Cai and Yang (2008) found that a legal contract is positively related to cooperative relationships. Therefore, we hypothesize the following:

H6: The presence of a legal contract is positively related to relationship quality.

Consequences of Relationship Quality: Financial Performance

The consequences of relationship quality identified in the literature vary, and they include both economic and noneconomic factors (Athanasopoulou 2008), such as share of purchasing, relationship continuity (e.g., Woo and Cha 2002), export performance (e.g., Ural 2009), supply chain performance (e.g., Fynes et al. 2005b) and service quality (e.g., Bennett and Barkensjo 2005). More importantly, the role of the consequences of relationship quality in improving

performance is widely investigated. For instance, Crosby et al. (1990) found a positive effect of relationship quality in service selling on financial performance. By investigating electronics manufacturers in Ireland, Fynes et al. (2005b) found that supply chain relationship quality has a positive effect on supply chain performance. Ural (2009) found that relationship quality positively influences the financial performance of Turkish exporter firms. In the context of this study, TCE postulates that the goal of logistics users to reduce transaction costs and improve performance eventually establishes close logistics outsourcing relationships. This observation suggests the following hypothesis:

H7: Relationship quality has a positive effect on financial performance.

RESEARCH METHODOLOGY

Sample and Data Collection

This study was based on a questionnaire survey in Mainland China. The sample was drawn from a list of members of the China Federation of Logistics and Purchasing (CFLP). First, companies were randomly selected from the CFLP membership database and were then phoned by one of the authors to determine whether they employed logistics outsourcing. Second, we identified appropriate contact persons familiar with or in charge of logistics in the companies and obtained their agreement to participate in the questionnaire. Then, a survey by interview or email was conducted. A total of 500 questionnaires were sent out, and 134 completed questionnaires were collected, reflecting a response rate of 26.8 percent. This response rate is acceptable compared with that in previous similar studies on logistics management in China (e.g., Tian et al. 2008; Wang et al. 2008). After screening, 4 of the 134 questionnaires were found to lack significant data and were thus discarded. The remaining 130 valid responses were used in the subsequent analysis.

Table 1 illustrates the profiles of the responding companies. In terms of ownership, 61.5 percent are local companies, 20.8 percent are foreign, and 17.7 percent are set up as joint venture companies. More than 65 percent of the companies have more than 10 years of operations history in the Mainland. About 36 percent are large-sized companies employing more than 500 full-time staff. Nearly half of the companies have an annual sales turnover of more than RMB100 million. In terms of industry, approximately 60 percent are manufacturers, 12.3 percent are retailers, 16.2 percent are importers/exporters/distributors, and the remainder are engaged in other industries.

Following the procedure suggested by Armstrong and Overton (1977), the late responses obtained after follow-up calls were compared to the early responses

TABLE 1

Respondent Demographics	
Characteristics	Percent
Ownership	
State-owned	16.9
Chinese private	44.6
Joint venture	17.7
Wholly foreign	20.8
Number of years operating	
<10	34.7
10–19	47.6
≥ 20	17.7
Number of full-time employees	
<100	25.2
100–499	39.0
500–999	10.6
1,000–4,999	13.8
≥ 5,000	11.4
Annual sales (million RMB yuan)	
<1	2.4
1–5	8.9
5–10	8.9
10–50	13.7
50–100	16.9
100–300	19.4
≥ 300	29.8
Industry composition	
Manufacturer	59.2
Retailing	12.3
Importer/exporter/distributor	16.2
Others	12.3

on demographic variables and key constructs. *T*-tests suggest no significant differences between the early and late responses, providing one indication that nonresponse bias is not present in our data.

Measurement Development

The measurement items were adapted from previous studies and were evaluated through focus group discussion and pilot testing. Questionnaire items from the extant literature were modified for this study to make them more appropriate for the logistics outsourcing and Chinese context. The modified items were subjected to a focus group discussion with several logistics managers and experts and were revised according to their feedback. The revised items were then subjected to a pilot study, which further helped revise the items. The final version of the scales is shown in the Appendix. A brief description follows.

Respondents were asked to answer questions related to their logistics outsourcing relationship with their major 3PL (to which their companies outsourced the

most logistics services in terms of cost). Relationship quality was operationalized as a multidimensional construct, and each of the three dimensions (i.e., trust, commitment and satisfaction) was measured using multiple items. Trust items were adapted from Ganesan (1994) and Coulter and Coulter (2002); commitment items were adapted from Zhao et al. (2008); and satisfaction items were adapted from Barry et al. (2008). All items related to relationship quality were anchored by a scale of *strongly disagree* (1) to *strongly agree* (7).

Regarding the antecedents of relationship quality, relationship length was reflected in the number of years the logistics user has been outsourcing his/her logistics to the major 3PL. Legal contract was measured as a dummy variable, with 1 representing the existence of a legal contract. The other antecedents were measured with multi-items. The 3PL importance and unavailability of alternatives scales were adapted from Cai and Yang (2008); logistics performance items were adapted from Stank et al. (2003) and Mentzer, Flint and Hult (2001); and information sharing items were adapted from Sezen (2008) and Stank, Crum and Arango (1999). Informants indicated their level of agreement on a 7-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (7).

As in most previous studies in the supply chain management literature (e.g., Huo, Selen, Yeung and Zhao 2008), financial performance was measured in terms of growth rate in annual profit, growth in annual sales, growth in return on sales and growth in return on assets. Respondents were asked to compare their company's financial performance with that of their major competitors. They answered using a 7-point Likert scale ranging from *very poor* (1) to *very good* (7).

Measurement Validation

Before testing the hypotheses, the set of variables (i.e., measurement items) for each of the constructs in the model was tested for content validity, reliability, convergent validity and discriminant validity, following the guidelines of Fornell and Larcker (1981). Content validity was established through the literature review and pretest. In this study, the SmartPLS 2.0 M3 software (Ringle, Wende and Will 2005) was used in conducting a confirmatory factor analysis to assess the measurement model.

First, the reflective second-order construct (relationship quality) was assessed. Following the guidelines of Wetzers, Odekerken-Schroder and Oppen (2009), relationship quality was set up through the repeated use of the manifested variables of its lower-order latent variables (i.e., benevolence trust, capability trust, commitment and satisfaction). The loadings of benevolence trust, capability trust, commitment and

satisfaction on relationship quality are 0.901, 0.846, 0.873 and 0.875, respectively. All constructs are significant at the 0.01 level. The Cronbach's alpha and composite reliability of relationship quality are 0.961 and 0.965, respectively. These results show the convergence and reliability of the second-order measurement of relationship quality (Wetzers et al. 2009).

The entire measurement model was then assessed. Cronbach's alpha and composite reliability were used to assess reliability. The values of Cronbach's alpha range from 0.826 to 0.961 (Table 2), whereas the composite reliabilities in our measurement model range from 0.883 to 0.965 (Table 2). Both are higher than the recommended threshold value of 0.70 (Nunnally and Bernstein 1994), suggesting adequate reliability.

Convergent validity was assessed in terms of factor loadings and average variance extracted (AVE). Item loadings >0.70 and significant at the $p < 0.01$ level (Gefen and Straub 2005) and/or AVEs >0.50 (Fornell and Larcker 1981) suggest acceptable convergent validity. Table 2 shows that all factor loadings are >0.70 and significant at the $p < 0.01$ level, and that all AVE values (ranging from 0.578 to 0.861) are higher than the recommended value of 0.50, demonstrating adequate convergent validity.

We assessed discriminant validity by comparing the square root of the AVE of each construct with the correlations between the focal construct and other constructs. A higher square root of AVE than the correlations with other constructs for each individual construct indicates discriminant validity (Fornell and Larcker 1981). Table 3 shows the interconstruct correlations of the diagonal of the matrix. A comparison of all the correlations and square roots of the AVEs on the diagonal indicates adequate discriminant validity.

Common method variance (CMV) is a concern in survey-based studies. Harmon's single-factor test, following the analytical procedure suggested by Podsakoff, MacKenzie, Lee and Podsakoff (2003), was conducted. Here, CMV is a concern if one factor accounts for most of the covariance. The results of a factor analysis showed that no factor accounts for more than 30 percent of the covariance, suggesting that CMV is not a concern.

Model Evaluation and Hypothesis Testing

The Partial Least Squares (PLS) technique of structural equation modeling (SEM) was employed to test hypotheses in this study using SmartPLS 2.0 M3 software (Ringle et al. 2005). The results are presented in Figure 2. In order to investigate the possible problem of multicollinearity, variance inflation factors (VIF) of antecedents are examined. The results show that all VIFs are <2 , suggesting that multicollinearity is unlikely present in our model.

As shown in Figure 2, the coefficients of 3PL importance, logistics performance and information sharing are positive and significant, along with that of relationship length and legal contract (at the 0.10 level), providing support for H1, H3 and H5 ($p < 0.05$), as well as marginal support for H4 and H6 ($p < 0.10$). The positive and significant path coefficient from relationship quality to financial performance ($b = 0.337$, $p < 0.05$) indicates support for H7. The results show that 3PL importance, logistics performance, information sharing, relationship length and legal contract are important facilitators of relationship quality, which has a positive effect on financial performance.

Following the procedure suggested by James, Mulaik and Brett (2006), we also test the mediating effects of relationship quality on the relationships between the antecedents and financial performance. The results suggest a partial mediation effect of relationship quality on the link between logistics performance and financial performance (indirect effect: 0.093, $p < 0.05$; direct effect: 0.440, $p < 0.05$), while the relationships from 3PL importance (indirect effect: 0.073, $p < 0.05$; direct effect: -0.069 , $p = 0.33$) and information sharing (indirect effect: 0.103, $p < 0.05$; direct effect: -0.035 , $p = 0.65$) to financial performance are fully mediated by relationship quality.

DISCUSSION AND IMPLICATIONS

Based on the structural equation estimations (shown in Figure 2), we conclude that Hypothesis 7 is supported, with a significant standardized path coefficient of 0.337 ($p < 0.01$). The result confirms the findings of previous research that relationship quality is an important prerequisite of supply chain performance (Fynes et al. 2008). In addition, R^2 indicates that 11.3 percent of the total variance of financial performance is explained by relationship quality, suggesting that logistics outsourcing relationships are quite important in achieving financial performance. The result is consistent with the perspective that a close supply chain relationship is critical to success (Morgan and Hunt 1994). These findings are important to logistics users, enabling them to improve financial performance by developing alliances with 3PLs and effectively managing logistics outsourcing relationships.

With respect to the antecedents of logistics outsourcing relationship quality, four proposed antecedents positively influence relationship quality. In addition, the R^2 in model 1 indicates that the proposed drivers can explain 45.2 percent of the variance of relationship quality. Specifically, a logistics user is more likely to develop a high-quality outsourcing relationship (covering behaviors such as showing high levels of trust, relationship commitment and satisfaction) with a 3PL when he/she believes that the 3PL is important

TABLE 2

Measurement Model					
Item	Loading	T-value*	CR	AVE	Cronbach's Alpha
<i>3PL importance</i>					
IM1	0.907	53.040	0.924	0.752	0.890
IM2	0.909	46.911			
IM3	0.864	32.229			
IM4	0.784	16.204			
<i>Unavailability of alternative</i>					
UA1	0.888	32.301	0.924	0.753	0.891
UA2	0.930	61.496			
UA3	0.742	9.768			
UA4	0.898	38.713			
<i>Logistics performance</i>					
LP1	0.766	12.905	0.916	0.609	0.893
LP2	0.824	22.324			
LP3	0.744	7.713			
LP4	0.772	10.016			
LP5	0.769	10.173			
LP6	0.776	14.831			
LP7	0.808	18.722			
<i>Relationship length</i>					
RL	1.000	n.a.	n.a.	n.a.	n.a.
<i>Information sharing</i>					
IS1	0.838	31.887	0.883	0.654	0.826
IS2	0.747	13.481			
IS3	0.857	18.743			
IS4	0.788	16.646			
<i>Legal contract</i>					
LC	1.000	n.a.	n.a.	n.a.	n.a.
<i>Benevolence trust</i>					
TR1	0.847	29.625	0.935	0.741	0.912
TR2	0.815	16.753			
TR3	0.901	51.990			
TR4	0.906	46.758			
TR5	0.831	25.560			
<i>Capability trust</i>					
TR6	0.805	23.039	0.936	0.747	0.915
TR7	0.859	26.721			
TR8	0.902	57.490			
TR9	0.907	52.489			
TR10	0.844	23.614			
<i>Commitment</i>					
CT1	0.772	16.574	0.937	0.713	0.919
CT2	0.861	31.339			
CT3	0.849	26.739			
CT4	0.850	18.840			
CT5	0.883	39.791			
CT6	0.845	29.514			

(continued)

TABLE 2 Continued

Item	Loading	T-value*	CR	AVE	Cronbach's Alpha
<i>Satisfaction</i>					
SA1	0.932	84.347	0.961	0.861	0.946
SA2	0.902	48.404			
SA3	0.962	148.132			
SA4	0.914	40.925			
<i>Financial performance</i>					
FP1	0.897	9.770	0.939	0.794	0.914
FP2	0.905	10.342			
FP3	0.919	12.236			
FP4	0.841	15.975			
<i>Relationship quality</i>					
Benevolence trust	0.901	54.697	0.965	0.578	0.961
Capability trust	0.846	24.425			
Commitment	0.873	30.085			
Satisfaction	0.875	41.164			

CR, composite reliability; AVE, average variance extracted; n.a., not applicable for single-item construct.
*All item loadings are significant at $p < 0.01$ level.

to the achievement of his/her financial and strategic goals (Hypothesis 1). The result is consistent with that in some previous studies (e.g., Golicic and Mentzer 2005). This finding also confirms one tenet of the RDT — that companies attempt to develop close interfirm relationships when they are highly dependent on other firms. These findings are important to 3PLs because the importance of 3PL stems from the dependence of the user on the logistics service provided. If a 3PL wants to improve (or enhance) its relationship with a user, the manager can increase the user's dependence on its services by providing customized services or investing in the relationship (Hofer et al. 2009).

However, the unavailability of alternatives is not empirically supported as a driver of logistics outsourcing relationships (Hypothesis 2). This result may be attributed to the specific characteristics of the Chinese logistics market. In China, particularly after its entry into the World Trade Organization, logistics has been characterized by rapid growth, with an increasing number of 3PLs established over the years. However, the logistics services that are mainly outsourced are traditional services, such as transportation and warehousing (Wang et al. 2010), which are easy to replicate. China's 3PLs also continue to compete based on cost (Wang et al. 2010). Therefore, the availability of alternatives is currently not a constraint for logistics users in China.

The model also supports the hypothesis that logistics performance is positively related to relationship quality (Hypothesis 3). This hypothesis indicates that when a user is satisfied with the quality of a

logistics service (that a 3PL provides), the user is more likely to develop a high-quality outsourcing relationship with the 3PL. RDT posits that the more important and/or valued the outcome of a relationship, the greater the dependence is on the relationship; thus, a closer relationship is expected. This finding supports the hypothesis by identifying logistics performance (i.e., the direct outcome from a logistics outsourcing relationship) as a driver of relationship quality. The result also provides empirical evidence to support the conclusion of Golicic and Mentzer (2005) that performance is an important driver of relationship quality. The finding also suggests that 3PLs can establish a close relationship with logistics users by providing high-quality logistics services to ensure that logistics users experience improved performance.

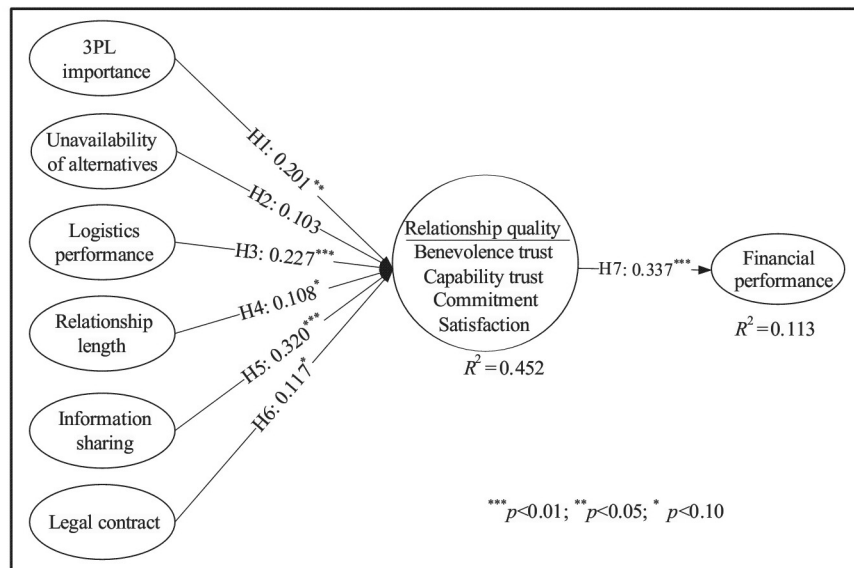
Relationship length is not supported as a factor that enhances relationship quality (Hypothesis 4) ($p < 0.05$). However, there is a marginally significant relationship ($p < 0.10$). The result is consistent with some previous studies (Joshi and Stump 1999; Cai and Yang 2008; Tian et al. 2008). According to TCE, relationship length represents a specific investment in the relationship (Golicic and Mentzer 2005). This finding confirms the TCE-based tenet that logistics users attempt to develop high-quality logistics relationships to safeguard specific investment. This relationship may be only marginally significant due to our research context, where the development process of logistics outsourcing relationships is still in its infancy (Tian et al. 2008) and the formulation of relationship quality is not based on experience but on

TABLE 3
Correlation Matrix

	Mean	Standard Deviation	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11
3PL importance (X1)	3.523	1.552	0.867										
Unavailability of alternative (X2)	2.536	1.438	0.646	0.868									
Logistics performance (X3)	5.146	1.058	0.184	0.166	0.780								
Relationship length (X4)	0.000	0.972	0.153	0.207	0.020	n.a.							
Information sharing (X5)	4.031	1.438	0.250	0.254	0.254	0.161	0.809						
Legal contract (X6)	0.685	0.466	0.091	-0.052	0.006	-0.068	0.276	n.a.					
Benevolence trust (X7)	3.898	1.331	0.388	0.362	0.370	0.172	0.388	0.224	0.861				
Capability trust (X8)	4.379	1.301	0.267	0.287	0.339	0.122	0.449	0.241	0.722	0.864			
Relationship commitment (X9)	3.799	1.310	0.459	0.377	0.360	0.263	0.520	0.147	0.699	0.606	0.844		
Relationship satisfaction (X10)	4.660	1.249	0.361	0.278	0.383	0.160	0.447	0.143	0.730	0.650	0.708	0.928	
Financial performance (X11)	4.968	1.191	0.088	0.049	0.544	0.072	0.200	0.221	0.341	0.292	0.282	0.269	0.891

Square root of the variance extracted is shown on the diagonal of each matrix in bold; interconstruct correlation is shown off the diagonal; n.a., not applicable for single-item construct.

FIGURE 2
Structural Model Estimation



facets such as information sharing, specific investment and reputation.

The model reflects strong support for the argument that information sharing plays an important role in shaping high-quality logistics outsourcing relationships (Hypothesis 5). Sharing information, which serves as a sign of the honesty and openness of 3PLs, can reduce relationship risks and enhance user trust, thus improving collaboration and cooperation between involved parties. This finding is consistent with the argument of Athanasopoulou (2006) that communication is an important antecedent of relationship quality. The finding is significant for logistics users and 3PLs: they can develop a high-quality logistics outsourcing relationship by fostering high levels of information sharing with each other.

The positive influence of a legal contract on relationship quality (Hypothesis 6) is not supported ($p < 0.05$). However, there is a marginally significant relationship ($p < 0.10$). The result contributes to the TCE literature by providing evidence supporting the argument that a legal contract, as a means of governance, may provide some value to interfirm relationships within the Chinese 3PL context. The finding is consistent with that of Cai and Yang (2008), who indicated that a legal contract weakly influences cooperative relationships. The finding is important for logistics users and 3PLs in China because if they want to develop a high-quality logistics outsourcing relationship, there could be a benefit to drafting a legal contract that specifies the obligations of trade partners and transaction details. This relationship may be only marginally significant due to the cultural context of

our data collection, where informal networks are more important than written contracts. In addition, once a contract has been written and expectations clarified, the additional benefits of the contract may be less valuable.

CONCLUSION AND LIMITATIONS

Based on TCE and RDT, we developed a conceptual model that examines the drivers and consequences of relationship quality in the context of logistics outsourcing. Using survey data from Mainland China, we found that 3PL importance, logistics performance, information sharing and legal contract are important drivers of relationship quality. These findings offer the following theoretical contributions. First, the results suggest that establishing close logistics outsourcing relationships is an effective way to manage dependence that stems from supply importance and valuable relationship outcomes (i.e., logistics performance). This finding extends the value of RDT. Second, both information sharing and legal contract, as governance mechanisms, complement relational governance (i.e., logistics outsourcing relationships), extending the contributions to TCE. Third, our findings suggest that TCE, coupled with RDT, can accurately predict logistics outsourcing relationship quality ($R^2 = 45.2$ percent), implying that a combination of these two theories can serve as a better theoretical framework for elucidating logistics outsourcing relationships.

Our findings also reveal several valuable managerial implications. First, close logistics outsourcing

relationships can be used to manage dependence and reduce transaction costs. Thus, logistics users can use such relationships as effective forms of governance to manage dependence and improve performance. Second, our study provides insight into the formation of high-quality logistics outsourcing relationships. The findings indicate that a 3PL can achieve high-quality logistics outsourcing relationships with its customers by concentrating its effort and resources on helping its customers achieve their strategic and financial goals, providing value-added services, and sharing an appropriate volume and type of information with its customers. Third, our findings suggest that logistics users should develop a high-quality relationship with a 3PL when the 3PL holds a highly important status and has good logistics performance in terms of outsourced logistics activities. We also found that a high-quality logistics outsourcing relationship is easy to shape within a relationship characterized by high levels of information sharing and comprehensive legal contracts.

Although this study contributes to the literature by examining the critical drivers of relationship quality and revealing significant managerial implications, its results should be viewed against its limitations to advance future research effectively. First, this study examined the relationship quality in a relationship with a 3PL from the user's perspective. The perceptions of 3PLs were not encompassed within the data. Future studies should investigate relationship quality from a 3PL perspective and compare the perceptions of both parties. Second, the proposed model focuses on a limited number of antecedents of relationship quality. Given that previous research has identified different sets of predictors of relationship quality, such as interpersonal characteristics (i.e., similarity, culture and work attitudes) (Smith 1988), market characteristics (Skarmas et al. 2008), and so on, future studies may explore and investigate other antecedents, such as logistics service characteristics (customized or standardized) and logistics service quality, among others. Third, the unique cultural and economic characteristics of the Chinese context may limit the generalizability of our findings. Future research should test the model in other cultures and compare the findings. Fourth, future research can test causality through a longitudinal or panel data study, as this study is cross-sectional by design.

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APPENDIX

Measurement Scales

Logistics Outsourcing Relationship Quality (Second-Order Construct)

Benevolence trust

- TR1 Our major 3PL cares for us
- TR2 Our major 3PL has made sacrifices for us in the past
- TR3 We feel our major 3PL has been on our side
- TR4 Our major 3PL is genuinely concerned about our success
- TR5 Our major 3PL considers our welfare as well as their own

Capability trust

- TR6 Our major 3PL has no problems answering our questions
- TR7 Our major 3PL is knowledgeable in managing logistics activities
- TR8 The advice our major 3PL gives us is helpful
- TR9 When we share our problems with our major 3PL, it can help us solve them
- TR10 Our major 3PL has the capability to satisfy our logistics service demand

Commitment

- CT1 We inform our friends and acquaintances about how our major 3PL is a great provider
- CT2 We feel that our major 3PL considers us as an important team member rather than just a customer
- CT3 We are proud to tell others that we are a customer of our major 3PL
- CT4 Our attachment to our major 3PL is primarily based on similarity of values
- CT5 We prefer our major 3PL to others because of what it stands for and the values it promotes
- CT6 Over the years, our company's values and those of the major 3PL have become more similar

Satisfaction

- SA1 In general, we are satisfied with the overall performance of our major 3PL
- SA2 We are satisfied with the price of the service we receive from our major 3PL
- SA3 We are satisfied with the quality of the service we receive from our major 3PL
- SA4 Overall, we are satisfied with the value of services provided by our major 3PL

Dependence

Unavailability of alternatives

- UA1 If our major 3PL no longer provided service to us, we would have difficulty switching to another 3PL to receive the similar level of logistics service
- UA2 If our firm no longer used our major 3PL's services, we would have difficulty in replacing their service with another similar service
- UA3 Our major 3PL is our only source of logistics service
- UA4 If our relationship with our major 3PL was terminated, we would suffer significant loss in income despite our best efforts to replace it

3PL importance

- IM5 Our major 3PL is crucial to our future performance
- IM6 Our relationship with our major 3PL is important in achieving our organizational goals
- IM7 Our firm is largely dependent on this 3PL to achieve our goals in terms of sales
- IM8 Over time, we expect this 3PL to provide an increasing percentage of our logistics service

Logistics performance

- LP1 Our major 3PL provides us with high value-added logistics service
- LP2 Our major 3PL provides us with high-quality logistics service
- LP3 Our major 3PL provides us with speedy delivery
- LP4 Our major 3PL provides us with highly reliable delivery
- LP5 Our major 3PL has a high level of responsiveness to our needs
- LP6 Our major 3PL has a high level of flexibility to meet our changing needs

(continued)

APPENDIX (Continued)

LP7 Our major 3PL provides services that result in the lowest total logistics costs

Relationship characteristics

Relationship length

RL How many years has your company cooperated with your major 3PL?

Information sharing

IS1 There is a high level of information exchange with our major 3PL

IS2 We share our 3PL's information to track our shipments

IS3 Our major 3PL shares available service capacity with us

IS4 We share our logistics service demand forecast with our major 3PL

Legal contract

LC Did your company have a legal contract with your major 3PL?

Financial performance

Evaluate your company's performance against that of your major competitors in the following areas

FP1 Growth of return of sales in the past 2 years

FP2 Growth of return of assets in the past 2 years

FP3 Growth of sales in the past 2 years

FP4 Growth of profit in the past 2 years