

The Impact of Guanxi on Logistics Service Value

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ABSTRACT

Under the context of relationship, the concept of guanxi is an ambiguous term that embeds Chinese philosophy of social structure and interactions. The purpose of this study is to examine the relationship between logistics service value, relationship quality, guanxi and the financial performance of Thai shippers. To do so, this study uses a structural equation model (SEM), as it is the most appropriate multivariate analytical technique to estimate multiple and interrelated dependent relationships. The method embraces unobserved concepts that are termed constructs, latent variables and factors, thus allowing the researcher to handle a large number of endogenous and exogenous variables (Hair et al., 2010). The study results show that guanxi had a significant positive effect on logistics service value and financial performance. Logistics service value, however, did not have a significant effect on financial performance, nor did guanxi on relationship quality. The results provide a better understanding of the role relationships play in the context of logistics service value and how it can affect financial performance. They also can be used as a guideline in making strategic business decisions with Asian businesses.

INTRODUCTION

Transport and trade development through modern transport practices, such as logistics service value (LSV), have significantly affected current transport systems. Logistics service providers are encouraged to realize the importance of material flow integration and its links to value creation. Conventionally, value can be understood in two ways: 1) value can be perceived as the cost that buyers are willing to pay for a firm's output in yielding its competitive advantage (Lu, 1997; Ruston et al., 2007) and 2) value is created by discrete activities such as operational performance or market activities (Porter, 1985). The concept of value has been approached from many disciplines (Rutner and Langley Jr., 2000). Payne and Holt (2001) claimed that the concept evolved from exchange, utility and labor value theories in the context of economic studies, while others argue that the concept evolved from service and retail marketing (Ravald and Grönroos, 1996; Woodruff, 1997). Nevertheless, the fundamental nature of service value in the logistics context shares a similar foundation to service value in the marketing context, where service providers are trying to meet or exceed customer require-

ments through customer services (Langley Jr. and Holcomb, 2000).

Collaborative relationships between shippers and operators have received considerable attention in determining the effectiveness of logistics services. The term ‘relationship’ in the context of transport has always been a critical factor in creating a positive business environment. Successful relationships ensure proper use of stakeholder expertise in any transport operation (TRB, 1999). In several service related studies, the importance of personal interactions or relationships is recognised as an important means of satisfying customers (Parasuraman et al., 1985; Crosby et al., 1990; Tate, 1996; Athanasopoulou, 2009). Addressed by Rushton et al. (2007), a traditional adversarial relationship between two parties may see each other as competitors, which might result in a ‘win-lose’ situation. On the other hand, a relationship between two parties intimately bound by a shared vision and goal is seen as a ‘win-win’ situation, with both parties gaining more than from an adversarial relationship (Rushton et al., 2007). In the work of Crosby et al. (1990), relationship quality is viewed as a higher-order construct composed of at least two general dimensions – trust and satisfaction. In their research, trust is defined as a confident belief that the service provider can be relied upon to behave in such a manner that the long-term interest of the customer will be served. Satisfaction is defined as an emotional state that occurs in response to an evaluation of customer experiences (Crosby et al., 1990).

In the Asian context, however, especially in China, the term ‘relationship’ incorporates more than just the Western concepts of long-term business relationships or short-term transactions. The term ‘guanxi’, briefly translated as personal connections/relationships, is deeply embedded in the mindset of most Asians, and in every aspect of their personal and organisational interactions. In Thailand, with a population estimated to include 14 percent Chinese and 30-40 percent of Chinese descent (CIA, 2012), guanxi is particularly important. Wong and Chan (1999) described guanxi as a relationship characterized by favor, trust and interdependence that leads to insider-based decision making in business transactions. Guanxi is a continuous process requiring activities undertaken by the parties in a relationship, and cannot be completed without the active and reciprocal involvement of both parties (Davies et al., 1995).

Guanxi, defined as the quality of interpersonal relationships “characterised by the bestowing and receiving of benefits from each other” (Wong and Tjosvold, 2010: 776), represents a catalyst to elevate customer satisfaction with pre-established services. In the management literature, guanxi is an important asset in the corporate culture at the firm level, which is carefully utilized by the firm (Lee and Szeto et al., 2006; Humphreys, 2007). Some research connects guanxi with unethical acts in business management (Yeung and Tung, 1995). However, according to Szeto et al. (2006), many Chinese perceive guanxi as the only efficient means to conduct business in countries where business infrastructure is not yet fully developed.

Guanxi plays a greater role in small and medium-sized companies, due to their limited economic influence, than in larger companies. Owners of smaller companies seek to maintain guanxi with their suppliers, customers and government

officials (Yeung and Tung, 1995). Collective strength, through *guanxi*, yields better results than companies acting individualistically (Szeto et al., 2006). *Guanxi* can be visualised as a facilitator for business improvement in both the service and industrial sectors based on the fact that it will significantly reduce the level of perceived uncertainty regarding the business environment, yielding a variety of improved performance outcomes. Furthermore, in business-to-business dealings, a long-term interactive relationship such as *guanxi* should be stressed for long-term profitability, eventually leading to better financial performance (Wong and Tjosvold, 2010). Hence, efforts to establish *guanxi* will benefit parties by achieving a higher level of service satisfaction and performance.

Financial performance analyzes the effectiveness and efficiency in accomplishing a given business task (Mentzer and Konrad, 1991). It is often used to evaluate the productivity of a particular ratio of real output to real input (Neely, 1999). In Mentzer and Konrad's (1991) research on the efficiency and effectiveness in logistics performance, traditional performance measurements (i.e. man-hours, equipment-hours or monetary value) was used to measure logistics activities such as transportation, warehousing, inventory control, order processing and logistics administration. However, Lai et al. (2002) argued that traditional performance measurements are less relevant for measuring supply-chain performance, due to the subjective level of measurement in service effectiveness for shippers, operations efficiency for transport logistics service providers and service effectiveness for consignees.

For small and medium companies, cost and time are critical to ensure waste is kept low. In addition, the dependency of customer relationships is kept high to enable them to be flexible enough to respond to market changes. Larger counterparts are more concerned with market share or market penetration (Hudson et al., 2001). Financial performance is often measured by profitability, which measures return on investment (ROI), return on sales (ROS), return on assets (ROA) and financial liquidity (Flynn et al., 2010; Germain et al., 2006; Johnson, 1999). The financial dimension of performance is the most appropriate basis for measuring performance output, regardless of company size (Brewer and Speh, 2000; Bourne et al., 2002). Based on the literature review, we propose the following research model (Figure 1):

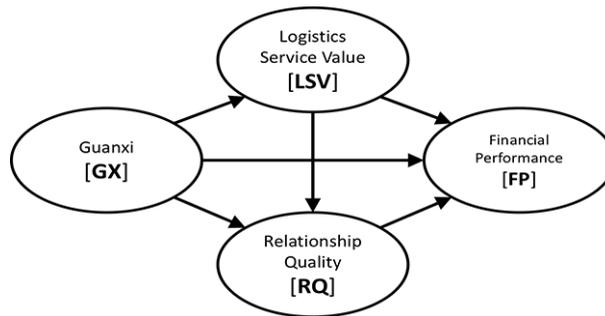


Figure 1. Research model

To understand the role of guanxi on the provision of logistics service value, research hypotheses were created based on the research model, which is designed to examine the causal effects of each factor (Table 1).

Table 1. Research hypotheses.

H1:	Logistics Service Value of the shipper relates positively to Relationship Quality with its transport service providers.
H2:	Logistics Service Value of the shippers relates positively to its Financial Performance.
H3:	A shipper's Relationship Quality with its transport service providers has a positive effect on its Financial Performance.
H4:	Shipper's Guanxi with its transport service provider has a positive influence on the Relationship Quality between them.
H5:	Shipper's Guanxi with its transport service provider has a positive influence on its received logistics service value.
H6:	Shipper's Guanxi with its transport service provider has a positive influence on its Financial Performance.

MATERIALS AND METHODS

Research method

This study uses a questionnaire survey to collect the empirical data. The questionnaire included five sections. The first four sections are seven-likert-scaled subjective questions to measure the level of satisfaction of each factor used in this study, namely; logistics service value, relationship quality, guanxi and financial performance. The last section is general background information, which evaluates a respondent's relationship with the company. This last section is not used in the structural equation model, but instead is intended to provide understanding of the respondents and their attitudes toward their company and the logistics service sector. The questionnaire includes 43 self-administrated questions: 31 measurement questions (of which, logistics service value – 10, relationship quality – 8, guanxi – 9 and financial performance – 4) and 12 general background questions.

As the wording of a question is critical in any self-administrated survey method, definitions of terms such as logistics service value, relationship quality and guanxi were provided on a separate sheet of paper. The wording was also designed to minimize academic wording.

Prior to validating the questionnaire, a pilot test examined the feasibility of the completed questionnaire under actual data collection conditions. This process is critical for finding potential errors or ambiguities in wording, sequencing, layout and clarity. Thirty sets of questions were distributed to 30 randomly selected firms in the industrial zone of Northern Thailand. Academic professors with degrees in logistics then reviewed the pilot test results. Amendments were made according to their suggestions. A research model was then developed to validate the measurement items and to test the relationships between them in the form of a structural equation model.

The research population for this research was drawn from the Thai National Shippers Council (TNSC) list (open access at www.tnsc.com) of logistics service businesses in Thailand (TNSC, 2012). This list is the most precise and up-to-date shipper database in Thailand, and includes companies with annual export values of at least THB 50 million (USD 1.58 million as of November 20, 2013). Questionnaires were distributed by post to the 2,782 Thai shippers listed in the TNSC list. In total, 289 questionnaires were returned, yielding a response rate of just over 10 percent. All research hypotheses were simultaneously analysed via SPSS and AMOS software packages (Version 18.0) with varimax rotation.

Validity test

It is important with structural equation models to assess the model's overall fit and validity. After assessing the data for multivariate assumptions, the fitness of each individual latent factor was evaluated using confirmatory factor analysis (CFA). To detect misspecification in the hypothesis model, standard goodness-of-fit indices were used. In order to assess the output of the measurement model, a set of criteria was used to evaluate the measurement model validity. According to Hair et al., (2010), the χ^2 value and the associated degree of freedom with a ratio of 3:1 ($\chi^2/df < 3.0$) is recommended, with at least one absolute fit index and one incremental fit index. In this study, a combination of absolute fit indices will be used (χ^2/df , GFI and RMSEA), along with CFI and TLI as the incremental fit index (Min and Mentzer, 2004). A summary of the measurement model validity indices is provided in Table 2. The CFA results suggest a good overall fit with verified unidimensionality (Table 3).

Table 2. Measurement model validity.

Validity		Criteria
Overall model fit / Unidimensionality	<i>Absolute Fit Index</i>	$\chi^2 / df < 3.0,$
		<i>GFI > 0.8</i>
		<i>RMSEA < 0.08</i>
	<i>Incremental Fit Index</i>	CFI > 0.9
		TLI > 0.9

Source: Hair et al., (2010); Byrne (2001); Arbuckle (2005).

Table 3. Summary of latent variable.

Constructs	Items	χ^2/df	GFI	RMSEA	CFI	TLI
LSV	9	1.74	0.962	0.056	0.989	0.983
RQ	7	2.27	0.971	0.073	0.987	0.975
GX	9	2.13	0.963	0.069	0.980	0.966
FP	4	2.75	0.988	0.085	0.996	0.987

Note: χ^2 - Chi-square; df - degree of freedom; GFI - Goodness-of-fit; RMSEA - Root Mean Square Error of Approximation; CFI - Comparative Fit Index; TLI - Tucker-Lewis Index.

Table 4 shows six possible pairs of constructs for assessing discriminant validity. The difference in chi-square values for the constrained and unconstrained model in the entire model exceeds 3.84. A significant lower chi-square value for the model, in which the trait correlations are not constrained to unity, indicates that the traits are not perfectly correlated and that discriminant validity can be inferred (Lu and Yang, 2010).

Table 4. Assessment of discriminant validity.

Pair of constructs	χ^2 (df)				χ^2 difference (df)		
	Unconstrained Model		Constrained Model				
LSV vs RQ	51.4	(8)	76.3	(9)	24.9	(1)	**
LSV vs GX	32.7	(13)	70.9	(14)	38.2	(1)	**
LSV vs FP	18.3	(13)	69.9	(14)	51.6	(1)	**
RQ vs GX	30.0	(13)	66.0	(14)	36.0	(1)	**
RQ vs FP	17.6	(13)	63.8	(14)	46.2	(1)	**
GX vs FP	19.9	(19)	63.3	(20)	43.4	(1)	**

Note: * df - degree of freedom. ** p < 0.01.

RESULTS

The result of hypothesis testing revealed that four out of six hypotheses were significant. Logistics service value had a significant relationship with relationship

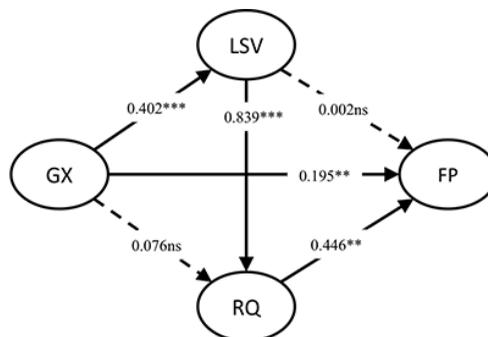
quality (estimate = 0.839, t -value > 3.29), but not with financial performance. Relationship quality had a significant relationship with firm performance (estimate = 0.446, t -value > 1.96). Guanxi had a significant relationship with logistics service value (estimate = 0.402, t -value > 3.29) and financial performance (estimate = 0.195, t -value > 1.96), but not with relationship quality (estimate = 0.076). The results of the hypotheses testing are discussed in the following section.

Table 5. SEM results.

Paths			Estimates	S.E.a	t -value	p -value	Results
H1:	LSV	→ RQ	0.839	0.086	9.707	***	Supported
H2:	LSV	→ FP	0.002	0.226	0.007	0.994†	Not Supported
H3:	RQ	→ FP	0.446	0.222	2.005	0.045**	Supported
H4:	GX	→ RQ	0.076	0.053	1.441	0.150†	Not Supported
H5:	GX	→ LSV	0.402	0.064	6.315	***	Supported
H6:	GX	→ FP	0.195	0.085	2.290	0.022**	Supported
Overall Goodness-of-Fit Statistics							
$\chi^2/df = 1.96$ ($\chi^2 = 115.5$, $df = 59$); GFI = 0.932; RMSEA = 0.063; CFI = 0.972; TLI = 0.963.							

Note: a = S.E. is an estimate of the standard error of the covariance. *** = Significant at $p < 0.001$ ($t > \pm 3.29$). ** = Significant at $p < 0.05$ ($t > \pm 1.96$). † = Non-significant.

Individual hypothesised paths between each construct were postulated in the structural model (see previous section). This involves determining whether the path coefficients were significant. To test the posited hypotheses, the t -value associated with each parameter was examined. If an estimated t -value is greater than a certain ratio value (e.g. $p < 0.001$, t -value = ± 3.29 ; $p < 0.05$, t -value = ± 1.96 ; $p < 0.1$, t -value = ± 1.65) then the null hypothesis (associated estimated parameter equal to zero) would be rejected and the hypothesized relationship is supported (Table 5). The goodness-of-fit indices were applied to examine whether the model met the requirements. The hypothesised model involves examining the six hypothesized paths conceptually developed in the previous section (Figure 2).



$\chi^2/df = 1.96$ ($\chi^2 = 115.5$, $df = 59$); GFI = .932; RMSEA = .063; CFI = .972; TLI = .963

*** = Significant at $p < .001$ ($t > \pm 3.29$), ** = Significant at $p < .05$ ($t > \pm 1.96$), ns = Not Supported

Figure 2. The hypothesised model and the parameter estimates

H1, which proposed that logistics service value of the shippers relates positively to relationship quality with its transport service providers, was supported. In contrast, the predicted positive relationship between logistics service value and financial performance was not supported (H2). The hypothesized relationship between shipper's relationships qualities with his or her transport service provider with firm performance was supported (Table 5). The results provided support for H3, indicating a positive association between shippers' relationship quality and financial performance. H5, which posited that shipper's guanxi with its transport service provider has a positive influence on its received logistics service value, was validated. H6, which predicts that shipper's guanxi with its transport service provider has a positive influence on its financial performance, is also positively significant and in the hypothesised positive direction. The overall structural model yielded a GFI value of 0.932 with a χ^2/df ratio of 1.95, indicating a good fit between the model and data. In addition, the CFI (0.972) and TLI (0.963) values were greater than the 0.9 validity criteria. RMSEA (0.063) also exceeded the posited cut-off value (<0.08). In general, the goodness-of-fit indices indicated that the model exceeded the suggested threshold and can be accepted.

DISCUSSION

In this study, a model in logistics service value is developed and the instrument measuring the construct is validated. The measurement model developed in this research appears to adequately fit with the data collected and the construct validity of the measurement items are established with the procedures used in this research. Of note, the scale of influence of logistics service value on relationship quality in H1 is larger than all of the estimated paths. In line with Lin (2007), service providers must maintain expected levels of service to ensure their continued relationship with the customer. Therefore, through these empirical measures, logistics service value has a significant impact on relationship quality. However, logistics service value of the shippers was not positively associated with financial performance. This finding was unexpected as prior evidence showed that higher levels of service affected customers' financial performance through higher revenue and lower cost (Lambert and Burduroglu, 2000; Wang et al., 2004).

The indirect effect of logistics service value (0.374) with financial performance proposed a stronger impact than the direct effect (0.002). The indirect effect of logistics service value to financial performance was logistics service value to relationship quality to financial performance. This novel finding is supported by the work of Zeithaml (1988), which stated that value would gradually affect financial performance through securing a positive relationship. This is consistent with Lages et al. (2005), who showed that relationship quality is strongly associated with different dimensions of performance. As the present research sought non-obstructive performance measures (i.e. cultural and environmental differences), financial performance was used to increase the robustness and reliability of the structural model (Neely et al., 2005).

The hypothesised positive relationship between guanxi and relationship quality (H4) was not supported. Similar to H2, the indirect effect of guanxi and relationship quality (0.337) suggests a stronger impact than the direct effect (0.076). This suggests that even with a positive guanxi between shippers and operators, a more stable business-to-business relationship is required. This particular phenomenon might be caused by the fear of the negative effects of guanxi, which might jeopardize the business if relied on too heavily. Therefore, guanxi would impact relationship quality only if service operators provided positive service value. These findings are in line with Lee and Dawes (2004), who stated that guanxi is an important catalyst of interpersonal relationships, which affects almost every realm of life – from politics to business and from officialdom to street life. This research demonstrated that logistics service value, relationship quality and financial performance are positively associated with guanxi, which was identified as an asset in the corporate culture at the firm level that stimulates the use of personal relationships to elevate the firm-to-firm relationships (Szeto, et al. 2006). Guanxi plays an important role in several management practices, encouraging trust and loyalty on a personal level (Lee and Dawes, 2005).

The empirical results of the structural equation model analysis revealed that the hypothesized structural model attained a good overall fit. These findings were considered a significant step in the context of logistics service value, which converts conceptualised ideas into tested hypotheses. From a shipper's perspective, guanxi and relationship quality were significant factors in logistics operation. In addition, these relationship factors significantly exceed the importance of logistics service value on their financial performance. This research only examined the shippers' viewpoint. For further research, the proposed model should be tested from both the shippers and service provider's perspectives, concurrently. Other qualitative approaches, such as case studies, focus groups or Delphi studies, could be adapted to address this particular limitation. Alternative lists of shippers, such as from the Department of Export Promotion, could be purchased and used in questionnaire distribution to validate the consistency of the findings. Lastly, the questionnaires were distributed by post, with respondents asked to self-assess financial performance. Actual financial performance data would assist in validating the model.

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