From the Viewpoint of Business Customers to Explore the Antecedents of Satisfaction and Loyalty for Freight Shipping Industry in Taiwan

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Abstract: The freight shipping industry has become an important part of logistics services. Many companies view business customers as major sources of revenue. Under fierce market competition, managers of freight shipping company must find ways to maintain customers through continuous cooperation and enhance customer loyalty and satisfaction. This study explores the effects of service quality and relational performance on customer satisfaction and loyalty in a business-to-business context. This study adopted business customers of freight shipping companies in Taiwan as its sample and collected data via a self-administered questionnaire. After applying structural equation modeling to test the theoretical model, analytical results show that customer loyalty was influenced by the level of satisfaction. Additionally, the relational performance and service quality significantly affected satisfaction. Finally, this study discusses managerial implications and offers suggestions for future research.

Key Words: *Freight Shipping, Satisfaction, Service Quality, Relational Performance*

1. INTRODUCTION

The freight shipping industry has become an important part of logistics services. Under fierce market competition, managers in freight shipping industry must find ways to improve their service, retain customers through continuous cooperation, and enhance customer loyalty and satisfaction (Davis and Mentzer, 2006). For freight shipping companies, business customers have to stabilize the profit over the long term. Therefore, many freight shipping companies view business customers as major sources of revenue. Meanwhile, there have been many studies investigating customer loyalty in the motor carrier industry from a business-to-business (B2B) perspective (Stank et al., 2003).

Customer loyalty is a major factor that determines the competitiveness of businesses (Gremler and Brown, 1996). Since the interaction among businesses is more complicated than that between general consumer and businesses, service quality, mutual communication, cooperation and trade relations play important roles in transactions (Wetzel et al., 2000). Generally, when a company provides good service, customer satisfaction and loyalty are significantly increased (Innis and La Londe, 1994; Dresner and Xu, 1995). However, Wetzel et al. (2000) argued that the impact of service quality on satisfaction and loyalty requires further clarification, especially in the B2B area.

Previous studies of the freight shipping industry demonstrated that business customer satisfaction and loyalty are relevant to the overall performance of a logistics service and the relationship between a company and its business customer (Sharma et al., 1995; Ellinger and

Daugherty, 1997; Ellinger et al., 1999; Wilding and Juriado, 2004; Vickery et al., 2004; Panayides and So, 2005; Davis and Mentzer, 2006). Wilding and Juriado (2004) determined that when the freight shipping companies have good logistics capability and operating flexibility, business customers will be predisposed to continue purchasing the services offered by freight shipping companies. Notably, improved logistics capability is representative of enhanced operating performance and service quality (Stank et al., 2003; Davis and Mentzer, 2006). On the other hand, to maintain company operations, business customers cooperating with carrier companies focuses on price and service quality, and care about their relationships with freight shipping companies (Stank et al., 2003). Vickery et al. (2004) noted that when cooperation between a freight shipping company and business customer is good, freight shipping companies will be able to provide business customers with services that meet their demands, and thereby further enhancing efficiency (Ellinger and Daugherty, 1997; Ellinger et al., 1999). Maintaining good relations with existing business customers can improve the competitiveness and sustain profitability of a freight shipping company (Christopher et al., 1991; Leuthesser and Kohli, 1995; Scannell et al., 2000; Panayides and So, 2005; Fynes et al., 2005; Zhao et al., 2007).

Although some literatures showed positive relationships among those variables in different industries, some studies did not determine the significant effect of operational performance on customer satisfaction (Stank et al., 2003). Stank et al. (2003) thought few studies have focused on this issue and further analysis is needed. Therefore, this study builds and verifies the effects of service quality and relational performance on satisfaction and loyalty for freight shipping industry in a B2B context. This study adopted Taiwan's freight shipping companies as the case subject and collected data from Taiwan's enterprises. Structural equation modeling (SEM) is used to verify the fitness of the theoretical model, and the causal relationships and impacts among variables. Analytical results will provide managers in the freight shipping industry with marketing strategies and will be a foundation for future research.

2. LITERATURE REVIEW

2.1 Satisfaction and Loyalty

Oliver (1980) proposed the theory of "expectation-disconfirmation." He believed that customer satisfaction is determined by the consistency between pre-purchase expectations and actual products or service performance after purchasing. When actual performance is equal to or exceeds expectation, that customer will be satisfied. While performance is below expectation, dissatisfaction arises (Oliver and DeSarbo, 1988). Woodruff *et al.* (1983) argued that customer satisfaction, which was considered an immediate emotional response, is the value of products in use in specific situations. Westbrook and Oliver (1991) proposed that satisfaction can be measured via an overall feeling and emotion-based response.

Recently, many studies have investigated customer satisfaction and loyalty in the freight transportation and logistics industry. Premeaux et al. (1993) examined the difference in perceptions between consigners and freight shipping companies, and analyzed satisfaction and loyalty in the freight industry via a questionnaire with 35 items. Additionally, they analyzed the difference in importance of the attributes between consigners and freight shipping companies. Both Innis and La Londe (1994) and Dresner and Xu (1995) determined that good customer service significantly increases customer satisfaction and loyalty. Sharma et al. (1995) developed a conceptual model of customer satisfaction that includes the

purchasing process. This model demonstrated that customer satisfaction is affected by many variables, and positively impacts company profit. Ellinger et al. (1999) examined the effects of communication on customer satisfaction and loyalty in supply chain management. Loyalty in that study was composed of repurchase intention and relationship commitment.

Lu (2003) examined the impact of carrier service factors on shipper satisfaction in shipper-carrier partnering relationships, and suggested that service attributes are important to shipper satisfaction in a partnering relationship. Stank et al. (2003) developed and applied an integration model of logistics service performance to identify the antecedents of logistics service satisfaction and loyalty. In this model, market share is influenced by customer loyalty, and customer satisfaction is the antecedent of loyalty. Wilding and Juriado (2004) found that top five factors in logistics outsourcing were the abilities of third-party logistics (3PL) companies, operating flexibility, cost reduction, concentrating on core business and avoiding unnecessary investment. The principal reasons for discontinuing outsourcing are service and quality issues and trust and communication problems. Vickery et al. (2004) also determined that relational performance has a significant and positive effect on satisfaction, and satisfaction has the same effect on customer loyalty.

2.2 Service Quality

Customer service has become crucial to survival due to the intense competition in the carrier industry (Harding, 1998). Although studies by Ellinger and Daugherty (1997), Ellinger et al. (1999) and Stank et al. (2003) applied the concept of "operating performance" to present the performance result of a logistics service, many studies discovered that logistics service quality has a significant influence on customer satisfaction (Lin et al., 2005; Davis and Mentzer, 2006). Therefore, when exploring the important factors affecting customer satisfaction and loyalty, the quality of a logistics service is an important variable that cannot be ignored.

Wilding and Juriado (2004) proposed that freight shipping companies with good logistics ability, flexible operations with low prices are most likely to increase customer willingness to continue their business relationship. Additionally, good logistics capability means that freight shipping companies have good service quality and operating performance. Davis and Mentzer (2006) obtained a similar analytical result, indicting that high-quality logistics services enhance customer satisfaction. Most scholars use the series of studies published by Parasuraman, Zeithaml and Berry (PZB) as their theoretical bases. Notably, PZB developed a well-known scale called SERVQUAL to measure service quality across various service industries (Parasuraman et al., 1988). This SERVQUAL scale is composed of five dimensions and 22 items, including tangibility, reliability, responsiveness, assurance and empathy (Parasuraman et al., 1988). However, according to findings obtained by Finn and Lamb (1991), Cronin and Taylor (1992) and Triplett et al. (1994), the SERVQUAL scale will not obtain the dimensions of service quality. Thus, many researchers attempted to develop a specific service-quality scale for specific industries (Brady and Cronin, 2001). Although literature has many definitions for service quality, this study adopts "meet or exceed customer expectations," which is the most common definition used by scholars, as the definition for service quality (Reeves and Bednar, 1994).

Brady and Cronin (2001) divided the concept of service quality into interaction quality, physical environment quality, and outcome quality based on the viewpoint of a hierarchy. Interaction quality encompasses attitude, behavior and expertise. Physical environment

quality contains ambient conditions, design and social factors. Outcome quality encompasses wait time, tangibles and valence (Brady and Cronin, 2001). Menzter et al. (1999) developed a service-quality scale for the logistics industry. Their research results determined that service quality had nine dimensions—personnel contact quality, order discrepancy handling, order condition, order quality, order accuracy, timeliness, ordering release quantities, ordering procedures, and information quality. Menzter et al. (2001) argued that these nine dimensions can be considered a series of related processes when constructing a service-quality framework model of customer perception. The first stage is the perception of order placement activities, including contact quality of personnel, the cancelled amount in an order, quality of information and procedures associated with an order. The second stage is the perception of a received order. This stage can be divided into two small processes: 1) order accuracy, order condition and order quality affect 2) timeliness and order discrepancy handling. The final stage is overall satisfaction, which is influenced by factors in first and second stages. Moreover, Lu (2003) determined that timing, pricing, warehousing and sales were four important carrier service factors that impact shipper satisfaction.

2.3 Relational Performance

Relational performance is based in relational marketing. The goals of relational marketing are to maintain and improve relationships with customers. In addition to attracting new customers, the most important issue is to maintain customer loyalty. Christopher et al. (1991) noted that most companies do not focus on maintaining good relationships with their customers once a transaction is complete. Thus, if freight shipping companies can establish good relationships with their business customers, they can increase their competitiveness and ensure continued profitability.

Shani and Chalasani (1993) noted that the primary target of relational marketing is to ensure that relationships between customers and companies continue. Mohr and Spekman (1994) posited that the quality of relationships in the B2B context is based on cooperation. They also suggested that successful cooperative relationships prioritize commitment, coordination trust, communication quality and problem-solving over conflicts. Levitt (1983) proposed that relationships have an intangible value, and will impact transaction results between two businesses in the future. Keaveney (1995) noted that customers have increased willingness to continue cooperating with companies when they have good relationships with these companies. Daugherty et al. (1998) demonstrated that relational performance affects customer satisfaction and customer willingness to repurchase. Notably, relational performance encompasses communication and response. Ellinger and Daugherty (1997), Ellinger et al. (1999) and Fynes et al. (2005) proposed that good relational quality among supply chain members positively influences quality and customer satisfaction.

Stank et al. (2003) determined that good relational performance positively impacts business customer satisfaction and operation performance. Vickery et al. (2004) investigated the relationship between the relational performance of third-party logistics, customer satisfaction and customer loyalty. They found that good relational performance enhances satisfaction and loyalty. Panayides and So (2005) indicated that a company focuses on maintaining good customer relationships can improve their logistics service quality and performance. Zhao et al. (2007) also determined that good relationships between companies and customers positively impact customer satisfaction. Most studies that investigated relational performance generally measured a company's understanding of its customer needs, and provided recommendations to improve relationships, interaction and cooperation (Stank et al., 2003; Vickery et al., 2004).

3. METHOD

3.1 Research Model and Hypotheses

After reviewing pertinent literature, we believe that business customer satisfaction and loyalty are related to service quality, cost performance and relational performance of a freight shipping company. Thus, this study proposes the following research model (Fig. 1). First, most studies have demonstrated that business customer satisfaction positively influences loyalty (Dresner and Xu, 1995; Ellinger et al., 1999; Vickery et al., 2004; Panayides and So, 2005; Davis and Mentzer, 2006). From the perspective of a business customer, loyalty is the intention of continue a cooperative relationship (Vickery et al., 2004; Davis and Mentzer, 2006). Thus, this study proposes the first hypothesis that business customer satisfaction has a direct and positive effect on loyalty for freight shipping industry (H1). Second, previous studies demonstrated that good service quality offered by freight shipping companies can increase business customer satisfaction (Innis and La Londe, 1994; Stank et al., 1999, 2003). Additionally, if freight shipping companies improve relational performance with their business customers, they have an increased opportunity to identify customer needs and increase customer satisfaction (Ellinger and Daugherty, 1997; Ellinger *et al.*, 1999; Stank *et al.*, 2003; Vickery *et al.*, 2004). Thus, we propose the following two hypotheses that service quality and relational performance have the direct and positive effects on business customer satisfaction (H2 and H3). Finally, previous studies found that relational performance and cost performance positively affect service quality (Ellinger and Daugherty, 1997; Scannell et al., 2000; Vickery et al., 2004; Panayides and So, 2005; Fynes et al., 2005). For the freight shipping industry, a good relationship and frequent interaction can enhance the cooperation process and improve the perception of service (Ellinger and Daugherty, 1997). Thus, this study proposes the hypothesis that relational performance has the direct and positive effects on service quality (H4).

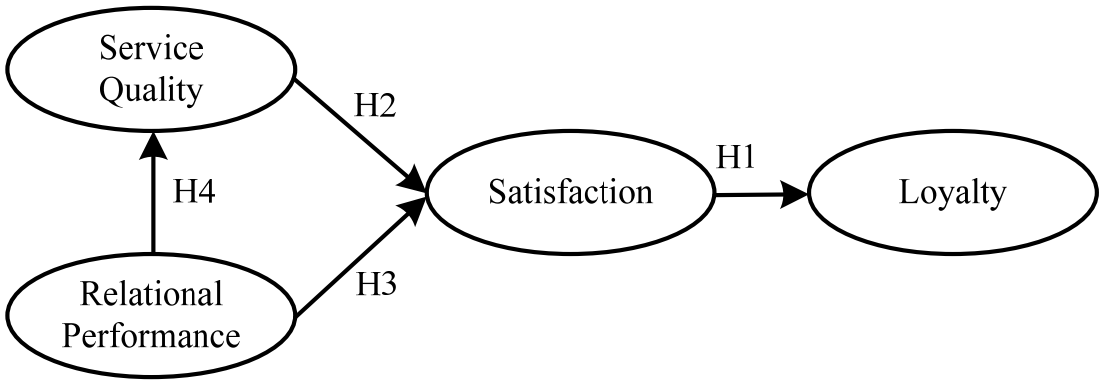

Figure 1 Research model

3.2 Measurements

Based on the service-quality dimensions proposed by Brady and Cronin (2001), this study develops three dimensions of service quality which includes delivery quality, interaction quality and physical environment. The manifest variables of each dimension are designed based on the work by Mentzer et al. (1999; 2001), Stank et al. (2003) and Vickery et al. (2004). Delivery quality, which has 12 items, is the quality about the process and outcome

while freight shipping company delivering the customer's freights and goods. It relates to arrival time, order procedure, available information, freight damage or quantity error, compensation, accounting error, security, etc. Interaction quality, which has 6 items, is comprised of attitude, acts and professional ability. Physical environment is composed of tangible elements viewed by customers, such as service employees, vehicles and facilities. This study designed items of relation performance based on the work by Stank et al. (2003) and Vickery et al. (2004). These items showed good reliability and validity in these studies of Stank et al. (2003) and Vickery et al. (2004). The measurements of business satisfaction and loyalty are derived from the work by Sharma et al. (1995), Ellinger and Daugherty (1997), Ellinger et al. (1999), Stank et al. (2003) and Vickery et al. (2004). Satisfaction measures are global in nature and provide an overall assessment of the extent to which a service matches expectations (Stank et al., 2003). Furthermore, loyalty measures are customer attitudes toward a service provider and their behavioral intention for future cooperation (Peltier and Westfall, 2000).

In summary, this study utilized 14 manifest variables as multiple indicators for four constructs (or latent variables) in the research model. Among these manifest variables, three manifest variables related to service quality are operationalized via a 21-item scale. Responses to the 35 items in the questionnaire are on a five-point Likert scale. Furthermore, since business customers may use more than two carriers, respondents were asked to fill out the questionnaire for their primary carrier. Researchers also visited two business customers of one carrier in Taiwan to discuss the items and determine whether they are appropriate. The items were then modified.

3.3 Data Collection

This study collected data via the questionnaire, which was mailed to businesses in different industries. Respondents were managers or decision-makers who are responsible for freight transportation and may communicate with freight shipping companies. To cover most industries using freight shipping companies in Taiwan, a stratified proportional sampling method was used. First, this study compared and integrated the information of three formal databases in Taiwan -"Standard Industrial Classification System of the R.O.C.," "Taiwan Industry Reports, Taiwan Institute of Economic Research," and the "Industrial Development Bureau, Ministry of Economic Affairs, Taiwan". Then nine major industries were determined. However, there is no ready data or report could tell us the distribution of freight shipping companies' customers for these nine major industries. Therefore, we visit two largest freight companies and used their customer databases to calculate the company percentage of each industry (see Table 1). Although we cannot compare our sample distribution with the entire population, we believe our sample distribution which is based on the data of two largest freight shipping companies could represent the entire freight industry. Besides, since the very low return rate of the mailed at 10% is quite normal, the sample size of each industry should exceed 300 to obtain a valid sample size, at least 30 respondents for each industry. Table 1 shows the sample size of each industry.

Table 1 Distribution of sampling design

Industry classification	%	Sample size
Food, drink and cigarette	12	928
Oil, chemical material and manufactory	11	921
Spinning, costume and accessories, Leather	5	411
Paper and printing	5	367
Electronic components	14	1147
Information, technology and consumer goods	9	757
Transport mode and components	4	349
General commodities	31	2463
Power and precision machinery	9	683
Total	100%	8026

3.4 Analysis

The paths in the research model were analyzed using structural equation modeling (SEM). Analysis followed a two-step procedure based partly on the approach recommended by Anderson and Gerbing (1988). The first step applied confirmatory factor analysis to develop a measurement model that has an acceptable fit to data. The second step then tests the theoretical model (or structural model) via path analysis to ensure that the structural model is meaningful and statistically acceptable. Notably, SEM is used to test some causal relationships among construct variables. The adjustment of collected sample could only produce some duplicate data and that is no meaning while applying this method. Therefore, the raw sample was used directly in this study.

Technically, when the appropriate assumptions hold, the chi-square test may be statistically insignificant. However, in practice, the chi-square test is extremely sensitive to sample size and departures from multivariate normality, frequently resulting in rejection of a well-fit model (Hoyle, 1995). Therefore, chi-square/degree-of-freedom (*df*) ratio can be used as an index of goodness-of-fit (James et al., 1982; Jöreskog and Sörbom, 1993). The acceptable chi-square/*df* ratio is <5 (<3 is better) (Jöreskog and Sörbom, 1993; Hatcher, 1998). Many fitness indices exist, such as Bentler's comparative fit index (CFI), goodness of fit index (GFI), GFI adjusted for degrees of freedom (AGFI), normed-fit index (NFI), non-normed-fit index (NNFI); all of which should exceed or be close to 0.9. Notably, root mean square residual (RMR) should be <0.05, and root mean square error of approximation (RMSEA) should be <0.08 (<0.05 is better) (Hatcher, 1998).

4. RESULTS

4.1 Sample and Reliability

In total, 8,026 questionnaires were mailed to companies, and 745 valid questionnaires were returned; valid response rate was 9.28%, which is acceptable for a mailed survey. Table 2 shows the sample structure. Among respondents, 56.11% used freight shipping company H and 25.23% used freight shipping company D. In total, 49.53% of companies were located in northern Taiwan; 53.15% of companies spend less than NT$10,000 per month for transportation; and 38.79% of companies spend NT$ 10,000–100,000 per month. Most products are general commodities (16.78%). Spinning, costumes, accessories and leather

account for 6.71% of products. Table 3 shows data reliability using Cronbach's α. All dimensions for construct variables have high reliability, with Cronbach's α values exceeding 0.8. Generally, data have acceptable reliability.

Table 2 Sample structure

company	N	%	Location	N	%
H company	418	56.11	North	369	49.53
D company	188	25.23	Middle west	203	27.25
T company	23	3.09	South	164	22.01
U company	28	3.76	East	7	0.94
Others	88	11.81	No answer	2	0.27
Total	745	100	Total	745	100
Cost per month	**N**	**%**	**Industry classification**	**N**	**%**
Less than NT$ 10,000	396	53.15	Food, drink and cigarette	83	11.14
NT$ 10,000~100,000	289	38.79	Oil, chemical material and manufactory	100	13.42
More than NT$ 100,000	51	6.85	Spinning, costume and accessories, leather	50	6.7
No answer	9	1.21	Paper and printing	54	7.25
Total	745	100	Electronic components	100	13.42
Need in exclusive vehicle	**N**	**%**	Information, technology and consumer goods	80	10.74
Often	254	34.09	Transport mode and components	56	7.52
Sometimes	282	37.85	General commodities	125	16.78
Never	206	27.65	Power and precision machinery	97	13.02
No answer	3	0.4	Total	745	100
Total	745	100			

Table 3 Reliability of construct variables

Construct variables	Cronbach's α
Service quality	0.952
Relational performance	0.897
Satisfaction	0.924
Loyalty	0.946

4.2 Confirmatory Factor Analysis

Prior to path analysis, the measurement model was first validated with measured variables that measure construct variables. This study has five construct variables: service quality (V1~V3), relational performance (V4~V7), satisfaction (V8~V10), and loyalty (V11~V14). Each construct variable contains three or more measured variables. Confirmatory factor analysis (CFA) was applied to test the measurement model, and maximum likelihood estimation was used to calculate parameters. Table 4 shows CFA results. The chi-square is 360.157 ($p < 0.0001$), and the chi-square/df is near 5 (360.157/71 = 5.073) which shows an acceptable result. Furthermore, model fit is also based on CFI, GFT, AGFI, NFI and NNFI estimates (Table 5). These fitness indices exceeded or were near 0.9. Moreover, the RMR and SRMR estimate is <0.05 and the RMSEA estimate is <0.08. These results indicate a good fit of the model structure to data.

Table 4 Fitness indices results of CFA

Chi-square	*df*	GFI	AGFI	CFI	NFI	NNFI	RMR	SRMR	RMSEA
360.157	71	0.929	0.895	0.973	0.966	0.973	0.016	0.025	0.074

Table 5 lists the reliability and validity of measures. The t values of factor loadings are used to assess validity. All factor loadings exceed 0.7 and are statistically significant ($p < 0.001$), supporting the convergent validity of all indicators that effectively measure the same construct (Anderson and Gerbing, 1988). The composite reliability of each construct exceeded 0.7, satisfying the minimally acceptable level (Fornell and Larcker, 1981; Hatcher, 1998). Moreover, all average variance extracted estimates of measured variables in this study met the standard proposed by Fornell and Larcker (1981); that is, they exceed 0.5. As a group, model constructs perform fairly well.

4.3 Path Analysis

The paths of causal relationships among construct variables in this study are constructed based on theories proposed by other scholars. In path analysis, the chi-square value for the model is 523.957. This value is statistically significant, while the ratio of chi-square/df is near 5 (372.283/73=5.1). Table 6 shows the computational results for the other indices: the GFI, AGFI, CFI, NFI and NNFI exceeded or were closed to 0.9. The RMR and RMSEA were also within acceptable ranges. Thus, fitness results for this structural model were ideal and met required standards. Table 7 shows the number of path coefficients among construct variables. Based on path analysis results, the model in this study has four structural equations. The value of R^2 for each equation is >0.5, proving that the explanatory capacity of paths is relatively adequate. All path coefficients are statistically significant. Their positive signs are consistent with the hypotheses in this study.

Table 5 Reliability and validity of measurement model

Variable	Standardized factor loadings	*t* value	Composite reliability	Variance extracted estimates
Service quality			0.887	0.725
V1	0.909	31.629*		
V2	0.914	31.882*		
V3	0.717	22.107*		
Relational performance			0.858	0.670
V4	0.739	23.054*		
V5	0.836	27.705*		
V6	0.874	29.717*		
V7	0.869	29.462*		
Satisfaction			0.925	0.804
V8	0.916	32.356*		
V9	0.906	31.741*		
V10	0.867	29.483*		
Loyalty			0.945	0.852
V11	0.919	32.643*		
V12	0.943	34.214*		
V13	0.907	31.902*		
V14	0.849	28.612*		

* denotes a significant value ($p<0.01$)

Table 6 Fitness indices results of path analysis

Chi-square	*df*	GFI	AGFI	CFI	NFI	NNFI	RMR	SRMR	RMSEA
372.283	73	0.927	0.896	0.972	0.965	0.972	0.018	0.028	0.074

Table 7 Results of structural model

	Standardized path coefficients	*t*-value	R^2
Loyalty			0.701
Satisfaction (H1)	0.837	29.835*	
Satisfaction			0.875
Service quality (H2)	0.322	6.786*	
Relational performance (H3)	0.644	12.956*	
Service quality			0.743
Relational performance (H4)	**0.862**	27.139*	

Note: * denotes a significant value ($p<0.01$); the bold number represents the strongest relationship.

The H1 result indicates that business customer satisfaction positively affects loyalty (0.837), meaning that if business customers are satisfied, they will have high purchase intention and loyalty. Business customer satisfaction is also influenced by service quality and relational performance of freight shipping companies (H2 and H3). Relational performance had a stronger influence (0.644) on satisfaction than service quality (0.322). Finally, the effect of relational performance on service quality (H4) is also positive and statistically significant (0.862). Table 8 indicates the direct, indirect and total effects among independent and dependent variables. The table contains three statistically significant indirect paths. In summary, relational performance has greatest direct effect on service quality and strongest total effects on satisfaction. It means that relation performance could not only enhance service quality but also improve satisfaction.

Table 8 Direct, indirect and total effects

Independent variable / Dependent variable	Relational Performance			Service Quality			Satisfaction		
	direct	indirect	total	direct	indirect	total	direct	indirect	total
Service Quality	*0.862*		0.862						
Satisfaction	0.644	0.278	**0.921**	0.322		0.322			
Loyalty		0.771	0.771		0.270	0.270	0.837		0.837

Note: The italic number represents the strongest direct effect; the bold number represents the strongest total effect.

5. DISCUSSION

This study constructed and tested a causal model of business customer loyalty and satisfaction related to service quality and relational performance. Data were collected from companies that purchase freight shipping services in Taiwan. The SEM analysis results indicate that the proposed model has good fitness. All hypotheses were supported.

According to research results, business customer loyalty to a freight shipping company is influenced by their degree of satisfaction, indicating that freight shipping companies should adopt strategies to maintain or enhance the satisfaction of their business customers to increase customer repurchase intention. Study findings also show that relational performance and service quality are significant predictors of satisfaction. Thus, freight shipping companies

should improve service quality determinants such as delivery quality, interaction quality, and physical environment. Furthermore, relational performance is an antecedent of service quality and satisfaction, and its influence on satisfaction is greater than that of service quality. When freight shipping companies have good relational performance with business customers, customer satisfaction and loyalty will be increased. This finding suggests that managers of freight shipping companies improve their internal and external communication and coordination. They should be aware of customer needs for logistics services, and collaborate with customers. In this manner, customer satisfaction and loyalty can be increased, generating an opportunity for continued cooperation in the near future.

Despite its contributions, this study has several limitations. First, the amount of data collected from logistics service users was limited by funding and the time. Future research should attempt to obtain data using various methods in this industry. For instance, focus group interviews with business customers and data collected from logistics providers can help researchers analyze the relationships among construct variables in the proposed model. Second, empirical analysis in this study focused on freight shipping companies in Taiwan. Future research can apply the proposed model to other freight transportation industries, such as sea shipping and airfreight transportation. Third, the interaction between freight shipping company and business customer is not the same as that between businesses and general consumers. Further study of service processes and activities of the freight shipping industry is needed to determine which service attributes are important or emphasized by business customers. Finally, this study confirmed the effects of relational performance and service quality on satisfaction and loyalty. Researchers should also explore other antecedents of business customer satisfaction and loyalty, such as perceived value or switching barriers, to generate a theoretical model that is more complete and integrated than the proposed model.

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