

# Outcome versus process value in service delivery

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## Abstract

**Purpose** – This study is embedded in social exchange and transaction cost theories. The purpose of this paper is to compare the relative importance of process value and outcome value in building affective and cognitive relationship strength and to compare the relative effects of each type of relationship strength on attitudinal and behavioral loyalty.

**Design/methodology/approach** – This empirical study features a quantitative approach. The sample comprises 167 business-to-business (B2B) customers of a large transportation and logistics company in Vietnam.

**Findings** – Process value and outcome value have different effects on affective relationship strength. The effect of process value is greater than that of outcome value. In addition, cognitive strength has a stronger impact on both attitudinal and behavioral loyalty than affective strength.

**Research limitations/implications** – These insights extend extant literature regarding the process and outcome components of the service assessment. Further studies also should use a cross-industry, cross-country sample to examine the potential moderating effects of country- or industry-specific factors. These findings show B2B managers how to make appropriate resource allocation and investment decisions to enhance relationship strength and resulting customer loyalty.

**Originality/value** – To clarify the links among customer value, relationship strength and customer loyalty, this study examines the relative importance of rational and non-rational factors (i.e. process value vs outcome value and affective strength vs cognitive strength) for relationship performance. Unlike most prior research, this study is set in the B2B context of a developing country.

**Keywords** Customer loyalty, Relationship strength, Outcome value, Process value

**Paper type** Research paper

## Introduction

The importance of both outcome and process aspects of service delivery is clearly evident in the on-going scholarly interest devoted to these aspects (Grönroos, 1982). However, diverse studies yield competing, inconclusive findings about the relative significance of these components of service provision (Loonam and O'Loughlin, 2008; Bhandari and Polonsky, 2007; Stauss, 2002; Zeithaml *et al.*, 1991), leading to confusion among both researchers and managers who seek guidance with regard to how to allocate scarce resources. Some theorists argue that the execution of a service delivery process (Grönroos, 1982) is more important than the end outcome of that service (Loonam and O'Loughlin, 2008; Zeithaml *et al.*, 1991). During the service delivery process,

providers have opportunities to differentiate themselves and create value for customers by arranging their resources to enact superior service experiences (Zeithaml *et al.*, 1991). But, other studies instead propose that the performance at the conclusion of a service has a greater impact on customer satisfaction than does performance during service delivery (Bhandari and Polonsky, 2007; Stauss, 2002). Another potential consideration is whether the strength of these relationships vary depending on the adoption of affective versus cognitive perspectives (Eggert and Ulaga, 2002). The varied results across studies prevent any uniform understanding of the relative effects of customer-perceived value, either during or at the conclusion of the service delivery.

From a practical perspective, the relative importance of outcome or process dimensions of value creation is an issue of increasing concern for managers in diverse industries but particularly in service industries that rely predominantly on the strength of their customer relationships and customer loyalty. The shipping industry is one such example: a service-based, global industry valued at US\$400bn annually

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(IHS Global Insight, 2009). It has experienced unprecedented growth as a result of decades of free trade and strong demand for consumer products (International Maritime Organization, 2012). Despite this success, several large incumbent operators, such as Genco Shipping and Trading Ltd., Gaiti Ltd., Neste Oil and Shipping Corp., have implemented exit strategies, citing challenges to their ability to sustain high service levels and pressures on their margins (Business Insider, 2014; The Economist, 2009). Faced with similar pressures, many shipping firms strive to increase customer loyalty by improving *outcome value* through reduced shipping costs or shortened transit times. For example, global carriers, including Maersk Line Ltd., Mediterranean Shipping Co. S.A. and CMA CGM S.A., combine their resources and share ships and port facilities to achieve additional cost savings (Livemint, 2014). But, other incumbents are investing in creating *process value* by improving services for customers, such as providing order tracking, live chat services, easier and faster booking confirmations or dispute resolution. Process value and outcome value, thus, can function as competitive tools, leveraged to attract customer loyalty. However, gradually decreasing resources and increasing competitive pressures suggest the potential need to balance outcome value and process value in services industries.

To fill in the research gap and to ease the burden of service industry managers, the present study contributes to the literature and the practice in several ways. First, it extends existing literature on value in business-to-business (B2B) markets by empirically examining and clarifying process value (i.e. the positive experience that a customer perceives during a service encounter) and outcome value (i.e. the ultimate trade-off between benefits and costs a customer perceives as the result of a service) (Grönroos, 1982). Second, this study offers insights into the relative influences of process value on affective strength and cognitive strength, in comparison with outcome value. Third, the current study extends existing research on behavioral choices in relationship settings to examine the relative strength of affective and cognitive perspectives in connection to their positive impacts on attitudinal and behavioral customer loyalty. The transaction cost theory suggests that economic attachment, as captured by cognitive relationship strength, is the main rationale for relational decisions (Williamson, 1985), whereas the social exchange theory implies that an emphasis on emotional attachment, as captured by affective strength, defines relationships (Emerson, 1976). Several prior studies cite the importance of social and economic forces that can affect exit behavior (Gassenheimer et al., 1998; Ping, 1997), though no studies examine the relative importance of affective and cognitive forces that affect other relationship decisions, such as attitudinal or behavioral loyalty. Therefore, this study extends extant literature by examining the relative impacts of affective and cognitive relationship strength on customer loyalty by using the transaction cost theory and the social exchange theory as foundations for predictions about relationship decisions. Fourth, the insights generated in this study recommend a balance of process value and outcome value investments that can scaffold relationship strength from an affective and/or cognitive perspective. These insights should help facilitate managerial decisions about hard and soft

capital appropriation to build the affective or cognitive strength of relationships in efforts to increase customer loyalty.

The next section details the theoretical background and the hypotheses development, followed by a description of the data collection method and summary of the empirical evaluation of the proposed hypotheses. Finally, a discussion of the findings and implications also includes some limitations and suggestions for further research.

## Theoretical background and framework

### Customer perceived value

Customer perceived value in general receives much attention in the marketing discipline (Eggert and Ulaga, 2002), because value is “the fundamental basis for all marketing activity” (Holbrook, 1994, p. 22). In a B2B context, most conceptualizations of customer perceived value highlight:

[. . .] the trade-off between the multiple benefits and sacrifices of a supplier's offering, as perceived by key decision-makers in the customer's organization, and taking into consideration the available alternative suppliers' offerings in a specific use situation (Eggert and Ulaga, 2002, p. 110).

Value, thus, differs from quality, which only captures the “benefit” side of this equation (Zeithaml, 1988). In B2B settings, value likely offers a better predictor of marketing outcomes (Gross, 1997), such as customer loyalty, repurchase intentions, word-of-mouth referrals, customer commitment and switching costs (Pura, 2005; Yang and Peterson, 2004; Eggert and Ulaga, 2002). Summarizing the value distinctions in the B2B setting, Mencarelli and Rivière (2014) suggested several key specificities: the value focus is on the importance of buyer–seller relationships rather than the subject–object interaction; value in the B2B context is heterogeneous from inter-organizational and also intra-organizational perspectives; and its perception is relative to competitive offerings (Mencarelli and Rivière, 2014; Ulaga and Chacour, 2001). Finally, different from value in B2C, most considerations of value in B2B settings adopt solely economic or functional perspectives, despite a few recent studies that emphasize on the role of non-rational dimensions such as experience or emotions for explaining organizational purchasing behaviors (Mencarelli and Rivière, 2014; Leek and Christodoulides, 2012). Overall, perceived value in the B2B context, thus, should include both functional and non-functional aspects.

Adopting this notion that value can be functional and/or non-functional (Chen and Kao, 2010; Richard and Allaway, 1993; Mangold and Babakus, 1991; Grönroos, 1982), the current study proposes that customer perceived value comprises process value, which is perceived during the process of service delivery, and outcome value, which is perceived at the conclusion of the service. This view is consistent with the service-dominant logic (SDL) (Vargo and Lusch, 2004), which emphasizes that value for customers is created “partly in interaction between the customer and the supplier or service provider” (Grönroos, 2000, pp. 24–25). According to the SDL, customers who access and assess value have a key role in the value creation process. Involving customers as participants who co-create their experience has a positive influence on their affective responses, which then enhances their cognitive receptivity and flexibility (Pekrun et al., 2002) and increases their positive satisfaction, because of the collaborative

construction of shared experiences (Roschelle, 1992). Using SDL, this type of co-creation can unfold in two ways: firm-centered or customer-centered. With a firm-centric approach, the focus is on configuring unique value drivers, based on the firm's existing competencies. A customer-centric approach instead is characterized by an outward focus that emphasizes on improving or creating new capabilities to address emerging market needs. This approach seeks to incorporate customer knowledge and skills to improve the quality of the offerings. With this lens, the market becomes a platform for co-creating customer-supplier experiences that address dynamic needs, that are unique and inimitable, and define value (Prahalad and Ramaswamy, 2004). The central assumption in extant studies such as those based on the SDL is that customer interaction is critical to co-production (Prahalad and Ramaswamy, 2004), value-in-use (Vargo and Lusch, 2004) and co-creation processes (Normann and Ramirez, 1993). However, there is no obvious distinction between process and outcome value, and few studies examine the relative effects of process versus outcome value. Further research, exploration and definition of these components of marketing are needed (Grönroos, 2006). Accordingly, Gummerus (2013) began with an articulation of the distinct dimensions of value as value creation processes and value outcomes. In the present study, however, we respond to the lack of studies that assess service performance based on value created during and after the service delivery. Hence, we deviate slightly from the path of Gummerus (2013) when we define process value as value created during service delivery and not as activities that firms engage in to create value. In doing so, we fill this gap in the literature by comparing the relative impacts of outcome value and process value on relationship strength.

### Relationship strength and customer loyalty

Strong relationships have long been considered a source of competitive advantage, because they enable unique access to information and resources (Dwyer et al., 1987). Relationship strength refers to the ties between relational partners that reflect the relationship's ability to weather internal and external challenges (Hausman, 2001). Numerous studies identify relationship strength as a significant predictor of customer satisfaction, loyalty and retention (Raciti et al., 2013; Hausman, 2001), as well as higher sales, market share and profits (Anderson and Mittal, 2000; Zeithaml, 2000). However, through almost two decades of research, the extant literature concerning relationship strength still lacks a sound conceptual framework. Relationship strength seldom has been directly measured, but, instead, with proxy constructs, such as repurchase intention, word of mouth, purchase shares and willingness to invest (Barry et al., 2008; De Ruyter et al., 2001; Hausman, 2001). The present study follows Shi et al. (2009) and conceptualizes relationship strength with two dimensions: affective strength and cognitive strength. Affective strength refers to the belief of relational partners that, from an emotional perspective, the on-going relationship is worth maintaining. Cognitive strength instead captures the economic attachment of relational partners to an on-going relationship (Shi et al., 2009). Each type of relationship strength may have different impacts on post-purchase

behavior. To extend prior literature, this study examines how outcome and process value influence both relationship strength types, as well as how these two types affect attitudinal and behavioral loyalty.

Increasing customer loyalty is a commonly predicted outcome of relationship investments (Palmatier et al., 2006), especially for B2B relationships, in which customer loyalty correlates positively with relationship quality (Rauyruen and Miller, 2007; De Wulf et al., 2001), satisfaction, commitment (Chumpitaz Caceres and Paparoidamis, 2007; Hennig-Thurau et al., 2002) and trust (Sirdeshmukh et al., 2002). Conceiving of loyalty solely in terms of the behavioral aspect may not be sufficient to distinguish between loyalty and spurious loyalty though (Rauyruen and Miller, 2007). Rather, loyalty comprises two central components, behavioral and attitudinal (Čater and Čater, 2010; Chumpitaz Caceres and Paparoidamis, 2007; Rauyruen and Miller, 2007). Therefore, the present study examines how attitudinal and behavioral loyalty are influenced by the different relationship strength types on the basis of well-established social exchange theory and transaction cost theory.

### Transaction cost theory and social exchange theory

The transaction cost theory is a theory of firm governance that places transaction costs at the center of the analysis (Williamson, 1975). Coase (1937) proposed that under certain conditions, conducting an economic exchange in a market can incur more costs than conducting it within the firm. Thus, the transaction cost theory mainly refers to the extent to which firms should self-govern or outsource activities because of the transaction costs induced before and during the exchange (Rindfleisch and Heide, 1997; Williamson, 1975). Even as marketing priorities have shifted from a transaction to a relationship orientation, transaction cost analysis has remained a theoretical foundation for many studies of inter-firm relationships and relationship management (Anderson and Weitz, 1992; Dwyer et al., 1987). In this case, the economic costs of relationships replace transaction costs to become the main rationale for parties to decide whether to remain in or exit a relationship (Gassenheimer et al., 1998).

Although the transaction cost theory focuses on economic interests, the social exchange theory emphasizes more on affective closeness in customer relationships. A relationship develops over time and on the basis of trust, loyalty and commitment, because parties abide by certain "rules" of exchange (Cropanzano and Mitchell, 2005). Relationship norms, based on the development of affection and feelings in relationships, can act as ties, bonding buyers and sellers to their dyadic relationships (Emerson, 1976), which represents an affective perspective of relationship strength. In summary, the transaction cost and social exchange theories provide two mechanisms that can explain how two dimensions of relationship strength, cognitive and affective, uniquely affect customer loyalty.

### Research hypotheses

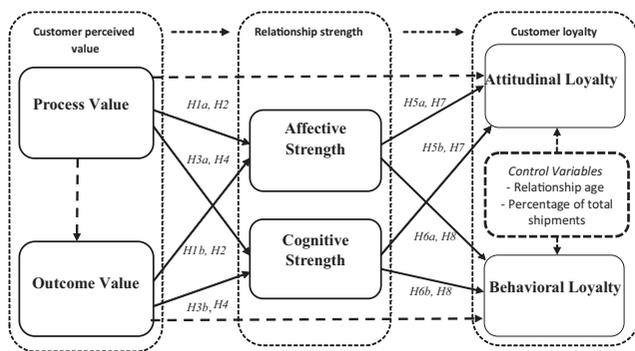
To answer the questions about how customer perceived process value and customer perceived outcome value influence relationship strength and how each type of relationship strength affects customer loyalty, the conceptual

model is developed and is displayed in Figure 1. The more value a customer receives during the service delivery process, the more positive the emotions toward the service provider become, thereby strengthening the emotional attachment between the two parties (Loonam and O’Loughlin, 2008; Zeithaml et al., 1991). Similarly, when customers perceive high outcome value at the end of the service delivery, they may forge stronger affective attachment in their relationships with the service provider (Dabholkar and Overby, 2005; Powpaka, 1996). As affective strength develops over time, even if customers perceive high outcome value at the end of the service delivery or feel satisfied with the service provider (Dabholkar and Overby, 2005; Powpaka, 1996), customer affection throughout the service process accounts for relationship strength more than singular emotion upon the emergence of the service outcome. At the conclusion of the service delivery process, customers have less time to experience emotional attachment, resulting in less affective strength compared to what can be expended during the service process. Thus:

- H1. (a) Process value and (b) outcome value have positive impacts on affective strength.
- H2. The effect of process value on affective strength is greater than that of outcome value.

During the service delivery process, customers compare the time, cost and effort spent on the service, as well as the service provider’s reputation and expertise. Research demonstrates that the level of perceived expertise increases source credibility (Johnson and Grayson, 2005) and enhances the cognitive strength of the relationship with the service provider. Similarly, at the outcome of the service, if a customer perceives greater benefits compared with the amount of time, cost and effort invested in the service, the customer will strengthen the relationship with the service provider based on an assessment with a cognitive perspective. Thus, both process value and outcome value are important predictors of cognitive relationship strength; however, their relative importance is different.

Figure 1 Conceptual model



Notes: The continuous arrows indicate the main hypothesized effects, and the dotted arrows indicate the effects of control variables and non-hypothesized effects used in the model

Firms with a high level of cognitive strength place more emphasis on the economic benefits of a relationship (Shi et al., 2009; Lutz, 1986), and the relationship is strengthened in cognitive terms as parties perceive greater economic benefits. Only at the end of the service does a customer gain a complete view of its economic outcomes, after comparing the economic benefits to the economic input required to obtain the service. Meanwhile, during the service process, customer perceived value is mainly affective, reflecting interactions with service providers. Therefore, the value perceived from the outcome of the service should influence the cognitive strength of the relationship more than the perceived value during the interaction process. Thus:

- H3. (a) Process value and (b) outcome value have positive impacts on cognitive strength.
- H4. The effect of outcome value on cognitive strength is greater than that of process value.

Building strong relationships with customers significantly influences future purchase intentions and behaviors (Anderson et al., 1994; Dwyer et al., 1987). Consistent with the social exchange theory, perceived affective attachment strongly influences attitude toward the partner and the relationship (Emerson, 1976). In addition, affective attachment between two parties relates closely to attitudinal loyalty (DeWitt et al., 2008). When the relationship parties bond with each other, as a result of their mutual affective emotions, the customer experiences greater motivation to continue the relationship, with the expectation of further positive outcomes. Thus, the customer tends to have more attitudinal loyalty, demonstrated in the form of repurchase intentions.

In contrast, the transaction cost theory posits that the relationship parties place more priority on economic benefits (Williamson, 1975). The customer might form cognitive attachment to the partner, for the primary purpose of deriving economic benefits, which then forms a motivation for attitudinal loyalty and increases the subsequent likelihood of repurchase intentions. Relationship-specific economic investments also are required to forge strong cognitive relationships, which can provide safeguards against opportunistic behaviors by service providers (Anderson and Weitz, 1992). As an outcome, customers perceive more security in the relationship and likely return to this service provider, with which they have an existing relationship.

The strong affection bonding two parties of the relationship positively influences behavioral loyalty, which is measured as reluctance to search for alternatives, because when two parties are emotionally attached to each other, they may have less motivation to search for alternatives to replace their partners (Ranganathan et al., 2013). Similarly, when the relationship between two parties grows cognitively stronger, both parties may exhibit greater behavioral loyalty. Thus:

- H5. (a) Affective strength and (b) cognitive strength have positive impacts on attitudinal loyalty.
- H6. (a) Affective strength and (b) cognitive strength have positive impacts on behavioral loyalty.

Regarding the comparison of economic and social benefits received by each party, Gassenheimer *et al.* (1998) proposed that equality in the distribution of economic and social benefits is crucial for relationship retention decisions when both parties receive good economic and social benefits. If both parties instead receive high economic benefits and low social benefits, the economic benefits must be equally distributed to maintain the relationship. Economic benefits then may play a more salient role in the decision to exit or maintain a relationship than social benefits (Gassenheimer *et al.*, 1998). Thus, we expect that parties in a relationship attached by cognitive strength have greater attitudinal and behavioral loyalty than parties attached by affective strength. The resulting hypothesis predicts:

H7. The effect of cognitive strength on attitudinal loyalty is greater than that of affective strength.

H8. The effect of cognitive strength on behavioral loyalty is greater than that of affective strength.

## Methodology

### Research context

The research setting for this study is the shipping industry in Vietnam. Vietnam is a suitable empirical setting for two reasons. First, though very few studies have investigated outcome and process elements of service value assessments in the B2B context in general, even fewer have done so in developing country settings. Customers in developing countries generally appear satisfied with acceptable levels of tangible core benefits (e.g. quality and value of the service *per se*) as outcomes of a service (Malhotra *et al.*, 1994). They may put less emphasis on intangible benefits, such as the lifestyles and sensory experiences gained during the service process. Therefore, a study of the relative effects of process value and outcome value in the context of a developing country can yield new findings that will extend the current literature. Second, Vietnam's business environment places a priority on relationships, and customer satisfaction depends on their relationships with or affection toward service providers (Le and Ngo, 2012). Setting this research in Vietnam represents a response to Malhotra *et al.*'s (1994) recommendation to consider cultural differences in B2B relationships while also providing a novel examination of the relative effects of affective relationship strength and cognitive strength in the context of a developing country.

The selection of the shipping industry as the source for data collection is important for three reasons. First, throughout the past century, the shipping industry has experienced unprecedented growth, as economic globalization and increasing industrialization of national economies has fueled free trade and rising demand for consumer products. The shipping industry carries more than 90 per cent of global trade, and technological advances have made shipping a more efficient method of transport (International Maritime Organization, 2012). However, the terrible global economic recession during the late 2000s resulted in a sharp decline in the volume of the global merchandise trade such that companies in the shipping industry have to rely on customer loyalty to ensure their performance. Second, advances in

technology and the growth of the ship-building industry have made the shipping industry more competitive; between 1980 and 2011, the world cargo carrying fleet nearly tripled, and the number of newly built ships continues to rise dramatically each year (International Maritime Organization, 2012). This competitive environment compels shipping firms to identify new means for differentiation in a bid to retain customers' loyalty. Therefore, the shipping industry provides a rich and relevant context to investigate how firms can influence relationship performance through an orientation toward outcome value creation or process value creation. Third, the UNCTAD 2011 Review of Maritime Transport revealed that developing countries (including Vietnam) account for the largest share of global trade transported by sea. They are among the main customers of the shipping industry, with expanding participation in ship scrapping, registration, construction and owning. Thus, shipping companies in Vietnam provide a fruitful context for investigating how B2B service firms are working to improve their customer relationships.

### Data equivalence

Following O'Cass and Ngo (2011), data equivalence was ensured through forward and backward translations for the survey between English and Vietnamese. First, the English version of the survey was translated into Vietnamese by a professional, certified translation company. Second, another professional, certified translation company translated this Vietnamese version into English. Two translated English versions were compared and adjusted to ensure conceptual equivalence for the final version of the survey. The participation of the same bilingual researcher in the forward and backward translation process helped augment translation equivalence (O'Cass and Ngo, 2011).

### Data collection and sample characteristics

The target respondents of this research were the shippers' logistics managers or assistants to those logistic managers, who possess the requisite knowledge to make or influence operational decisions about the selection of carriers for transporting cargo. The randomly selected sample for this study came from a Maersk Line customer database of free-hand cargo shippers, covering the entire southern Vietnam geographic area.

In the first data collection stage, 200 on-line survey invitations were e-mailed to shippers in the targeted sample population, followed by hard copies of the same questionnaire, sent by post. Four weeks later, 190 responses were received in total, though 12 were excluded because of incomplete responses, for an effective response rate of 89 per cent. However, a validity and quality check led to the deletion of an additional 11 responses. Thus, 167 usable responses remained, of which 70.6 per cent had been in relationships with the focal carrier for more than three years, 21.6 per cent for one-three years and 7.8 per cent for one year or less. Furthermore, 34.1 per cent of responding firms used the focal carrier to ship more than 40 per cent of their total shipments in 2010 on average, 57.5 per cent shipped 10–40 per cent and 8.4 per cent shipped less than 10 per cent with the focal carrier in 2010. With respect to monthly shipping volume, 49.7 per

cent carried more than 50 20-ft equivalent units (TEUs) per month, 31.1 per cent from 15 to 50 TEUs and 19.2 per cent less than 15 TEUs. Of the 167 sampled firms, 56.9 per cent were direct shippers, whereas 43.1 per cent were freight forwarders and logistics providers. Finally, 55.7 per cent of respondents were authorized to make decisions about carrier selection, and the other 44.3 per cent were influencers of these carrier selection decisions, which partially reflects the reliability and validity of the responses to the survey.

### Measures

All the construct measures in this study came from existing, tested scales, obtained through an in-depth review of research into outcome and process value, relationship strength and customer loyalty. Expert judges reviewed the face validity of the scales, and a pre-test served to refine all construct measures, which appeared in multi-item scales (Churchill, 1979). The responses used five-point Likert scales, ranging from strongly disagree (1) to strongly agree (5):

- *Relationship strength*: The measures of the two relationship strength types were adapted from Shi *et al.* (2009). Cognitive strength includes three items, reflecting the extent to which customers perceive to be economically attached in their relationships with the focal firm. Affective strength includes two items that refer to how close or affectively bonded customers feel to the focal firm.
- *Customer perceived value*: The two types of customer perceived value, outcome and process, came from Grönroos (1982) and Lapierre (2000). Outcome value includes two items reflecting the benefits that customers perceive at the end of the service in comparison with the money, time and effort they spend. Process value consists of three items related to the positive experience customers perceive during the service process in comparison with the money, time and effort they spend.
- *Attitudinal and behavioral loyalty*: This study measured repurchase intentions, as a proxy for attitudinal loyalty, with three items from Eggert and Ulaga (2002). Then, reluctance to search for alternatives offers the proxy for behavioral loyalty, measured with two items adapted from Eggert and Ulaga (2002).
- *Control variables*: Relationship age and percentage of the customer's total shipments shipped by the focal carrier provided control variables for the attitudinal loyalty and behavioral loyalty equations. That is, the percentage of the customer's total shipments carried by the focal carrier can reflect customer loyalty. In addition, because relationship age has a strong correlation with trust, commitment and continuity of the relationship (Palmatier *et al.*, 2006), relationship age also might affect customer loyalty (Auh *et al.*, 2007). This control variable was measured as the length of time (in years) a customer had maintained an account with the service provider.

### Analysis

#### Reliability, validity and descriptive statistics

Confirmatory factor analysis (CFA) provided a thorough validation of the measurement model. The results of the measurement analysis with the remaining items, including loadings, *t*-statistics, composite reliabilities (CRs), average

variances extracted (AVEs) and fit indices, are in Appendix. The CFA results show that the measurement model provides a reasonable fit to the data such that the non-normed fit index (NNFI), comparative fit index (CFI) and incremental fit index (IFI) all exceed 0.90 ( $\chi^2 = 122.41$ ,  $df = 75$ , root mean square error of approximation [RMSEA] = 0.062) (Gerbing and Anderson, 1992). The item loadings for all constructs ranged from 0.71 to 0.94, and their *t*-statistics were significant at the 1 per cent significance level. Furthermore, the CRs for all six latent constructs exceeded the acceptable level of 0.70, indicating acceptable reliability (Hair *et al.*, 2011; Fornell and Larcker, 1981). Appendix also shows good results for the convergent validity of all constructs, with AVEs ranging from 0.61 to 0.80, which satisfies Fornell and Larcker (1981) criterion that the AVE of items by the respective construct is at least greater than the unexplained variance ( $AVE > 0.5$ ).

Discriminant validity was assessed by a comparison of the square roots of the AVE and the construct correlations (Fornell and Larcker, 1981). Table I suggests that all square roots of AVE values were consistently greater than the off-diagonal correlations, indicating satisfactory discriminant validity. Table I also includes the means and standard deviations of the constructs used in the following analyses.

#### Common method bias

This study applied several other procedural remedies suggested by Podsakoff *et al.* (2003) to control for common method bias. First, respondents were assured of their complete confidentiality and anonymity during data collection, given no implications for right or wrong answers and encouraged to answer as honestly as possible. Second, the measurement items were carefully constructed to avoid item ambiguity and complexity from the comprehension stage of the response process (Podsakoff *et al.*, 2003). In addition to procedural controls, this study used Harman's one-factor test to check for the presence of common method variance (Podsakoff and Organ, 1986). The factor analysis on all items revealed that no general factor was apparent in the unrotated factor structure (the first factor accounted for 33.56 per cent of the 61.18 per cent explained variance). This finding implies that common method variance was not present in this study.

#### Results

The study used PLS-Graph 3.0 to test the structural paths of the model. Partial least squares (PLS) is an appropriate method for a sample with fewer than 250 observations (Reinartz *et al.*, 2009). Furthermore, the application of PLS is virtually unrestricted for both reflective and formative measures (Chin, 1998) and unconstrained by identification concerns, so PLS can effectively handle the complex conceptual model (Hair *et al.*, 2012).

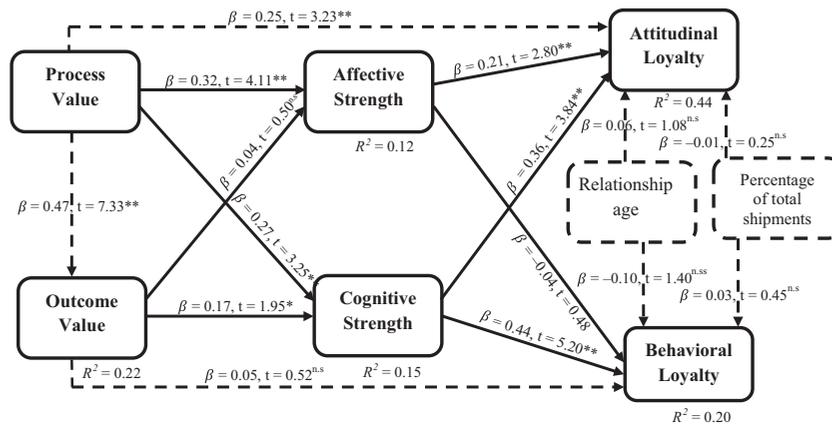
The results in Figure 2 indicate that only process value has a significantly positive influence on affective strength ( $\beta = 0.32$ ,  $t = 4.11$ ), whereas they show no significant link between outcome value and affective strength ( $\beta = 0.04$ ,  $t = 0.50$ ). The results support H3, because both process value ( $\beta = 0.27$ ,  $t = 3.25$ ) and outcome value ( $\beta = 0.17$ ,  $t = 1.95$ ) positively affect cognitive strength. Both affective strength ( $\beta = 0.21$ ,  $t = 2.80$ ) and cognitive strength ( $\beta = 0.36$ ,  $t = 3.84$ ) have positive impacts on intention to repurchase. Cognitive strength and

Table I Discriminant validity and tests of differences between correlations

Construct	M	SD	1	2	3	4	5	6
1. Process value	3.52	0.69	<i>0.81</i>					
2. Outcome value	3.89	0.53	0.47	<i>0.84</i>				
3. Affective strength	3.75	0.62	0.34	0.21	<i>0.82</i>			
4. Cognitive strength	3.66	0.65	0.36	0.31	0.63	<i>0.79</i>		
5. Attitudinal loyalty	3.75	0.54	0.45	0.25	0.52	0.59	<i>0.78</i>	
6. Behavioral loyalty	3.22	0.80	0.34	0.19	0.25	0.43	0.40	<i>0.89</i>

Note: Diagonal elements (in italics) represent the root mean square of the average variance extracted (AVE)

Figure 2 Results of model estimation



Notes: \* $p < 0.05$ ; \*\* $p < 0.01$ ; n.s = not significant; the continuous arrows indicate the main hypothesized effects, and the dotted arrows indicate the effects of control variables and non-hypothesized effects used in the model

behavioral loyalty (reluctance to search for alternatives) ( $\beta = 0.44, t = 5.20$ ) are positively associated, whereas little evidence supports the predicted impact of affective strength on behavioral loyalty though ( $\beta = -0.04, t = 0.48$ ). Control variable, relationship age or percentage of customer's total shipments assigned to the focal carrier, has no significant impacts on attitudinal loyalty (age–attitudinal loyalty:  $\beta = 0.06, t = 1.08$ ; percentage–attitudinal loyalty:  $\beta = -0.01, t = 0.25$ ). Similarly, they did not have significant impacts on behavioral loyalty (age–behavioral loyalty:  $\beta = -0.10, t = 1.40$ ; percentage–behavioral loyalty:  $\beta = 0.03, t = 0.45$ ).

The experience customers have during the process of a service can influence how they assess it at the completion of the service (Chen and Kao, 2010; Ariño, 2003), so process value may be associated with outcome value. Furthermore, the B2B service literature has suggested a direct link between perceived value and customer loyalty (Molinari et al., 2008; Lam et al., 2004). Therefore, following Johnson and Sohi (2001), Podsakoff et al. (2008) and Subramaniam and Youndt (2005), to replicate previous research, the current study also included the non-hypothesized links between process value and outcome value, between process value and attitudinal loyalty and between outcome value and behavioral loyalty in the estimated model. The analysis results demonstrated a significant link between process value and outcome value ( $\beta = 0.47, t = 7.33$ ), and process value significantly influenced attitudinal loyalty ( $\beta = 0.25, t = 3.23$ ). In contrast,

insufficient evidence arose to support the impact of outcome value on behavioral loyalty ( $\beta = 0.05, t = 0.52$ ).

To compare the relative effects of process value and outcome value, as well as of affective strength and cognitive strength, the Hotelling–Williams test is appropriate, as it is recommended when comparing non-independent correlations that share a variable (Howell, 1997; Steiger, 1980). We generated 500 bootstrap samples, calculated differences between beta weights for 500 cases and calculated the  $p$ -value. Comparing each pair of effects, the results in Table II show strong support for H2, with the significant evidence that process value is stronger than outcome value in contributing to affective strength ( $p = 0.05$ ). The comparison does not provide any evidence that outcome value has a significantly greater effect on cognitive strength than process value ( $p = 0.99$ ). Furthermore, the analysis results support H7 and H8. Cognitive strength is a stronger determinant of attitudinal loyalty ( $p = 0.00$ ) than affective strength. It also has a greater influence on behavioral loyalty than affective strength ( $p = 0.03$ ).

## Discussion and implications

### Discussion

The extant literature has paid little attention to the components of customer perceived value from the service delivery in general or, more specifically, to the relative effects

Table II Comparison of effects

Hypothesis	The greater effect	The smaller effect	p-value	
H2	Process value – affective strength	Outcome value – affective strength	0.05	S
H4	Outcome value – cognitive strength	Process value – cognitive strength	0.99	NS
H7	Cognitive strength – attitudinal loyalty	Affective strength – attitudinal loyalty	0.00	S
H8	Cognitive strength – behavioral loyalty	Affective strength – behavioral loyalty	0.03	S

Notes: S = supported; NS = not supported

of process value and outcome value in strengthening customer relationships. Consequently, a common assumption in the context of B2B relationships is that creating greater value than that provided by competitors will result in higher relationship performance. However, customer interaction also constitutes an important component of the service delivering process, besides the service outcome. The results of the present study show further support for previous studies that stress the greater importance of process over outcome benefits (Loonam and O'Loughlin, 2008; Zeithaml et al., 1991) when we found that a customer relationship can be affectively strengthened only through positive experiences and interactions during a service process. Process value, as perceived by customers, also has a strong relationship with the cognitive attachment between involved parties, aside from outcome value.

In addition, this study reveals that outcome value does not have a significant impact on affective relationship strength, but it does have an influence on cognitive strength. Our results provide more evidence for previous studies on the importance of customer perceived value at the outcome of the service to the relationship performance (Bhandari and Polonsky, 2007; Stauss, 2002). The explanation for the weaker relative effect of outcome value than process value may stem from the sample characteristics. Most of the relationships included in the sample already have achieved high outcome value and regard it as a norm, so their focus has shifted to process value, which is generally more variable across providers. That is, despite the result by which outcome value did not exert such a strong impact on affective and cognitive relationship strength as process value, it remains an important objective for practitioners and marketers.

Last, our findings indicate that the affective strength of a relationship can increase attitudinal loyalty, though it does not have a significant effect on behavioral loyalty; cognitive strength is a stronger determinant of both attitudinal and behavioral loyalty than affective strength. Although affective strength concentrates on positive emotions to forge relationships, cognitive strength intensifies the role of economic benefits in relationships. This result confirms previous findings regarding the relative importance of affective value and economic value (Gassenheimer et al., 1998). It provides more evidence for the argument that economic benefit plays a key role in relationships with customers and that relationships developed on the basis of cognitive benefits will be stronger than relationships developed through affective benefits.

### Research implications

Our study reveals several important theoretical implications. First, it enhances the extant knowledge regarding the connections among customer value, relationship strength and

customer loyalty by examining the relative importance of rational and non-rational factors (i.e. process value vs outcome value and affective strength vs cognitive strength) in contributing to relationship performance. Our work represents a clear response to Mencarelli and Rivière's (2014) call for research that includes "more non-rational dimensions in the appreciation of perceived value in B2B". The current findings show that both process value and outcome value are important in building stronger relationship strength. Including both rational and non-rational factors in the outcome equation represents a fine-grained approach that moves toward a better understanding of customer perceived value.

Second, in particular, this study supports the premise that process value and outcome value do not contribute equally to affective relationship strength in that the effect of process value is greater than that of outcome value. This finding is in line with the SDL, which asserts that experience-based value gets created during service delivery (Vargo and Lusch, 2004; Grönroos, 2000). The positive experience that a customer perceives during a service encounter is more valuable than the ultimate benefits the customer perceives as the result of the service delivery. This finding reinforces a core premise of the social exchange theory, which states that perceived affection toward the partner determines customers' attitudes and the relationship (Emerson, 1976). In addition, the current findings show that higher levels of both attitudinal and behavioral loyalty are driven by cognitive rather than affective relationships. This finding supports the transaction cost theory; economic attachment is more important than affective attachment for driving loyalty attitudes and behaviors.

### Practical implications

Our study offers insights for managers in B2B service firms. First, our findings show that managers should place more emphasis on process value, which is relatively more important than outcome value in building relationship strength. That is, managers in B2B service firms should design offerings that emphasize on the creation of more positive experiences for customers during the service delivery process. For instance, in 2012, Maersk Line launched its new customer care program, targeting high standards for invoice accuracy, booking confirmation speed, accessibility and issue resolution, dispute resolution and pre-arrival notification (Churchill, 2014). In addition, Maersk Line also provided sales and customer service agents with professional training to ensure that their interaction with customers is more joyful and positive. The implications of the different effects of process value and outcome value are important for managers to understand, particularly in industries that feature many low-budget carriers, which traditionally focus on increasing outcome value

for customers rather than on creating positive interaction experiences.

Second, in light of the finding that cognitive relationship strength has a higher impact on customer loyalty than affective strength, managers are advised to focus on building up customer relationships using cognitive appeals more so than affective appeals to secure both attitudinal and behavioral customer loyalty. As such, managers should focus on related economic attachment of the relationship to pre-empt and potentially eliminate a search for alternative providers. Specifically, to preserve relationships, thus, managers should articulate to their customers why the relationship is important and worth keeping by explaining to customers how switching to alternatives would be costly in terms of time, efforts and money.

Although we suggested that managers direct their investments in customer relationship building toward the cognitive base, they should take this advice with caution. In particular, failure to compete against competitors on the cognitive base may jeopardize the relationships between the firm and customers who are enticed to switch to competitors in favor of greater economic benefits. Our advice is once the cognitive relationship base has been covered, managers should seek to further develop the strength of the relationship using affective appeals.

### Limitations and research directions

The generalizability of these findings should be considered in light of this study's limitations. The first limitation is that the cross-sectional data do not account for the potential longitudinal effects of process value and outcome value on relationship performance, which suggests an avenue for further research into this issue. Relationships refer to long-term interactions between customers and service providers. Thus, future studies of the long-term effects of outcome value versus process value on relationship performance may yield important implications for managers and help them allocate investments to service outcomes and processes.

Second, although the generalizability of this study has been secured with the reasonable sample size, it is limited to the setting of the shipping industry and relies on a sample frame derived from one country. Meanwhile, research into the value construct cautions that value is contextually bounded (Vargo and Lusch, 2008) and that "it is not correct to assume that conceptualizations of value can directly transfer across contexts" (Zainuddin et al., 2011, p.366). Therefore, additional research should extend the sample frame to other contexts to include other industries and countries and thereby examine the potential moderating effects of country- or industry-specific factors on the associations between outcome and process value and relationship strength.

Third, further studies might include the relationship lifecycle to investigate its moderating effect on the link between customer perceived value and relationship performance. In different relationship stages, relationship partners exhibit varying levels of trust, commitment and criteria for choosing their intentions and behaviors toward the relationships. At the exploratory stage of a relationship, customer perceived value associated with the outcome of the service may be more important than the process,

because the economic benefits perceived at the outcome of a service will be crucial to enable customers to trust and continue the relationship. At the maturity stage, the positive experience and trust that a customer perceives during a service process instead are more important, because both parties have made specific investments in the established relationships.

In conclusion, marketing literature features an extended debate regarding the relative importance of outcome and process aspects in customer product and service evaluation. In practice, service providers in the shipping industry struggle to achieve a balance between their investments in process value and outcome value. This study offers the first comparison of the relative impacts of outcome value and process value on relationship strength and the relative effects of affective strength and cognitive strength on customer loyalty. Its findings yield important implications for both researchers and managers, regarding which types of customer perceived value and relationship strength warrant greater exploration and resource commitments.

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## Appendix

Table A1 Survey items

Constructs and indicators	Loadings	t-values
<i>Cognitive strength (CR = 0.83, AVE = 0.62)</i>		
1. From the economic perspective, the relationship with the carrier X deserves our maximum effort to maintain	0.80	19.18
2. The continuation of a relationship with the carrier X is very important to our firm	0.84	27.60
3. Changing carriers would cost our firm time and efforts and/or money	0.73	12.58
<i>Affective strength (CR = 0.81, AVE = 0.68)</i>		
1. We enjoy the interaction with the carrier X	0.78	15.94
2. We have very close relationship with the carrier X	0.86	23.67
<i>Outcome value (CR = 0.84, AVE = 0.73) In comparison with the money, time and effort we spend...</i>		
1. The benefits we receive from carrier X is good	0.94	21.49
2. The service we receive from the carrier X is reasonable	0.72	4.31
<i>Process value (CR = 0.85, AVE = 0.66) In comparison with the money, time and effort we spend...</i>		
1. The carrier X gives us a positive experience during the time we use their service	0.81	17.41
2. We have an enjoying time during the time we use the service	0.85	25.61
3. We have a happy time during the time we use the service	0.77	12.56
<i>Attitudinal loyalty (CR = 0.82, AVE = 0.61)</i>		
1. Next time, we will buy again service from the carrier X	0.71	12.00
2. Within the next three years, we will consider the carrier X as the first choice in our new inquiries/contract	0.85	36.79
3. We intend to continue the volume support to the carrier X in the next three years	0.78	17.21
<i>Behavioral loyalty (CR = 0.88, AVE = 0.80)</i>		
1. Recently, we have NOT spent some effort to search for alternative carriers	0.87	27.81
2. We are NOT continuously looking for alternatives to replace the carrier X	0.91	42.11

Notes: Fit statistics:  $\chi^2 = 122.41$ ;  $df = 75$ ;  $CMIN/df = 1.63$ ;  $NNFI = 0.91$ ;  $CFI = 0.94$ ;  $IFI = 0.94$ ;  $RMSEA = 0.062$ ; and  $GFI = 0.91$

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