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The moderating effect of buyer purchasing strategy on the relationship between supplier transaction-specific investment and supplier firm performance

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ABSTRACT

This study examines whether the type of buyer relational strategy (competitive or cooperative strategy) moderates the relationship between supplier transaction specific investments (TSIs) and buyer commitment, and whether the type of buyer cost reduction strategy (purchase price-based strategy or total cost-based strategy) moderates the relationship between buyer commitment and supplier performance outcomes.

Data were collected through a survey of purchasing managers at 248 buying firms in Korea. Results indicate that supplier TSIs positively affect supplier firm performance through buyer trust and commitment. The influence of supplier TSIs on buyer commitment depends on which relational strategy buyers use and the influence of buyer commitment on supplier firm performance depends on which buyer cost reduction strategy is used.

1. Introduction

Many suppliers in business-to-business markets actively engage in relationship marketing and attempt to maintain long-term and stable relationships with buyers (Anderson & Narus, 1990; Ebers & Thorsten, 2015; Kalwani & Narayandas, 1995; Morgan & Hunt, 1994; Ulaga & Eggert, 2006). Supplier's transaction-specific investments (TSIs) are a critical factor driving its buyer's long-term relationship orientation. TSIs are specialized assets that are difficult or expensive to transfer to other relationships, or investments that may lose value if redeployed to other buyers (Anderson & Narus, 1990). It is important that suppliers understand how their investments will affect their performce outcomes when they initiate transaction-specific investments. Buyers also have interest in the supplier's investments because buyers will be influenced by the investments in aspects such as quality, cost, transaction volume, and production operation (Wind & Thomas, 2010). Accordingly, the outcomes of supplier's transaction-specific investment should be understood from a bilateral perspective.

Existing research, however, has focused on either the strategy of a buyer or a supplier. There are no studies about how the performance outcome of a supplier's marketing investments is affected by buyer strategy. Moreover, the importance of using a bilateral perspective is even more when the strategies of the two parties are not fully aligned, which is not uncommon. This research seeks to examine how marketing strategies of a supplying firm and purchasing strategies of a buying firm influence each other, and how supplier performance outcomes are affected by interactions between the two parties.

We examine buyer's trust and commitment to explicate the impact of a supplier's TSIs on performance outcomes. One party's TSIs raise mutual trust by increasing transaction-specific assets and reducing the other party's opportunism, thus fostering a long-term exchange relationship between the two parties (Heide & John, 1990). Also, a party's TSIs bind the firm to the exchange relationship for a certain period of time, which is likely to increase each party's reciprocal commitment (Yeo, Han, and Koh, 2010). Morgan and Hunt (1994) suggest that trust and commitment are important factors in maintaining successful supplier-buyer relationships, and that trust positively influences commitment. They argue that one party's trust and commitment enhance the other party's performance outcome because trust and commitment contribute to maintaining long-term relationships (Dyer, 1996; Li, Balasubramanian, & Popkowski, 2014).

On the other hand, buying firms try to achieve superior purchase performance in terms of cost, quality and delivery by maximizing their bargaining power in the purchasing relationship. These firms employ purchasing strategies that are labeled relational strategy and cost reduction strategy (Anderson & Katz, 1998; Bensaou, 1999; Burt, 1989; Kraljic, 1983; Landeros, 1988). Burt (1989) and Landeros (1988) suggest that relational strategy can be classified into competitive and

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cooperative types. A buyer's competitive strategy tries to enhance its own purchasing power by having multiple suppliers compete with each other, whereas a cooperative strategy tries to reduce transaction costs and increase synergy with a few selected suppliers over a long period by maintaining long-term contracts with a few suppliers.

Anderson & Katz (1998) and Bensaou (1999) argue that a buyer is better off pursuing a cost reduction strategy by cooperating with suppliers over the long-term when the suppliers have greater bargaining power than the buyer. They recommend that a buyer should pursue a short-term cost reduction strategy by leveraging its position when it has greater bargaining power than the supplier.

Given the above discussion, this study has the following research goals. First, this study examines whether a supplier transaction-specific investment positively impacts buyer commitment to and trust in the supplier. Second, the study examines whether buyer commitment in turn positively impacts supplier performance. Third, the study investigates whether buyer purchasing strategy moderates the relationship between supplier TSIs and supplier performance outcomes. More specifically, this study examines whether buyer relational strategy (competitive or cooperative strategy) moderates the relationship between supplier TSIs and buyer commitment, and whether buyer cost reduction strategy (purchase price-based strategy or total cost-based strategy) moderates the relationship between buyer commitment and supplier performance outcomes.

The theoretical background and research hypotheses are proposed in the next section. The research methods and results and hypothesis tests are then described. Finally, the implications are discussed.

2. Theory and research hypotheses

2.1. Effects of transaction-specific investments on trust and commitment

Trust in B2B marketing is defined as a party's willingness to rely on an exchange partner in whom the party has confidence (Moorman, Zaltman, & Deshpande, 1992). From a buying firm's perspective trust includes two distinct components: (1) credibility, which is based on the extent to which a buyer believes that a supplier has the required expertise to perform the job effectively and reliably, and (2) benevolence, which is based on the extent to which a buyer believes that a supplier has intentions and motives that benefit the buyer (Morgan & Hunt, 1994). Trust focuses on the objective belief of an exchange partner that its partner's words or written statements are reliable. A supplier's specific investments in an exchange relationship signal to the buyer that the supplier can be trusted (Morgan & Hunt, 1994). A supplier's TSIs are likely to influence a buyer's trust through various mechanisms. Most importantly, a supplier's specific investments will foster commitment to the relationship because the investments are hard to transfer to other relationships, and thus will reduce the supplier's potentially opportunistic tendencies.

Webster (1991) indicates that formulation of a firm's procurement strategy may be the most important role of B2B marketers due to the strategy's ability to deliver superior value to customers. Morgan and Hunt (1994) suggest that because partners that deliver superior benefits are highly valued, a buyer will commit to developing and maintaining relationships with such suppliers. A supplier's TSIs may be seen as efforts to provide more value to specific buyers. When one supplier's assets are specific to the relationship with a specific buyer, the buyer's dependence on the relationship increases, as well as the cost of finding replacement suppliers, and this is likely to strengthen the buyer's long-term relationship with the supplier (Morgan & Hunt, 1994). Accordingly, Hypotheses 1 and 2 propose that supplier TSIs will have a positive impact on buyer trust and commitment, respectively.

Hypothesis 1. Buyer's perception of supplier transaction-specific investments will positively affect buyer trust in the supplier.

Hypothesis 2. Buyer's perception of supplier transaction-specific investments will positively affect buyer commitment to the supplier.

2.2. Trust, commitment and their effects

A party's trust in and commitment to a partner in an exchange relationship are major factors of relationship marketing that affect a partner's performance. Trust is belief in a transaction partner (Doney & Cannon, 1997) and an expectation that the other party will not take advantage of opportunities for opportunistic behavior (Hosmer, 1995). Similarly, Ganesan (1994) finds that a buyer's trust in a supplier can reduce the perceived risks related to the supplier's possible opportunistic behavior, can reassure the buyer that short-term inequalities will be resolved in the long-term, and can reduce transaction costs in an exchange relationship. As a result, increased buyer trust can raise the buyer's intention to participate in a long-term exchange relationship with a supplier. A party's trust has been found in many studies to be a major factor in promoting long-term relationships with other parties (Anderson & Narus, 1990; Friedman, Kahn, & Howe, 2000; Morgan & Hunt, 1994; Rascovic, Brencic, Fransoo, & Morec, 2012). Thus, Hypothesis 3 proposes a positive relationship between buyer trust and buyer commitment.

Hypothesis 3. Buyer trust in a supplier will positively affect buyer commitment to the supplier.

Dwyer, Schurr, and Oh (1987) conceptualize commitment as either an implicit or explicit promise between exchange partners to continue an exchange relationship. The authors indicate that a buying firm that is committed to an exchange relationship will consider the current supplier to be important and show strong intent to maintain the supplier-buyer relationship (Anderson & Weitz, 1992; Dwyer et al., 1987; Gundlach, Achrol, & Mentzer, 1995; Rascovic et al., 2012). Gundlach et al. (1995) consider that a party's commitment represents an intention to endure short-term sacrifices in order to achieve long-term relationship benefits, and provides a foundation on which to develop social norms through which a partner's opportunism can be reduced.

A supplier may enjoy better relationship performance when the supplier obtains a stronger commitment from a buyer. It has been reported that organizations with highly committed supplier-buyer relationships achieve better performance outcomes (Moon & Tikoo, 2013). Kalwani and Narayandas (1995) indicate that suppliers in long-term committed relationships are able to reduce costs over time through better inventory utilization and achieve higher profits by reducing discretionary expenses (such as sales, general, and administrative overhead costs) more than under transactional approaches. Also, in terms of sustainable competitive advantage, firms achieve a variety of beneficial outcomes from committed partners, and these outcomes include reduced costs, increased profits, a more positive reputation, and price premiums (Reicheld, 1996). Thus, Hypothesis 4 proposes a positive relationship between buyer commitment and supplier performance outcomes.

Hypothesis 4. Buyer commitment to a supplier will positively affect the buyer's evaluation of supplier performance.

2.3. Relational strategies of buying firms: cooperative versus competitive strategy

The buying firm is an important element in the mix of factors influencing supplier profitability. In the past, the main role of purchasing in buying firms was to secure stable supply. Oover time, however, the focus of purchasing has shifted, first to the minimization of purchase prices, and then to a longer-term perspective of minimizing the total cost of purchasing by promoting competition among diverse suppliers (Emilio & Renato, 2013; Pop & Sitar, 2012). Thus, marketers in supplying firms must monitor and adapt to the changing roles and strategic

behaviors of buyers.

Many studies have looked at supplier-relational strategies by buyers (Gelderman & Van, 2003; Kraljic, 1983; Marjolein, Canies, & Gelderman, 2007; Olsen & Ellram, 1997a). Kraljic (1983) argues that purchase items of buying firms can be classified on the basis of purchase importance (high, low) and complexity of the supply market (high, low), and proposes effective strategies for each of the four types of purchase items (strategic items, leverage items, bottleneck items, non-critical items). A relational and cooperative strategy is recommended for strategic and bottleneck items, whereas a short-term and competitive strategy is recommended for leverage and non-critical items. A buying firm is expected to select either a long-term relational, cooperative strategy or a short-term, competitive strategy, depending on the importance of the purchase item and complexity of the supply market, rather than as a response to a supplier's marketing efforts and relationship activities. However, it is worth noting that buyer perspectives may not coincide with those of suppliers.

Watson (1984) suggests the need to consider interdependencies between buyers and suppliers when deciding on purchasing strategy, and recommends a cooperative relational purchasing strategy when a buyer's dependence is high, and a competitive relational strategy when the buyer's dependence is low. Dwyer et al. (1987) propose that buying firms follow one of two strategies in their relationships with suppliers. One is a discrete transaction strategy wherein the firm selects as many suppliers as possible and engages in competitive, short-term transactions, whereas the other is a relationship strategy wherein a firm selects a few suppliers, maintains long-term cooperative relationships, and frequently exchanges information with those suppliers. Landeros (1988) considers the intensity of the relationship between buyer and supplier, and identifies two buyer purchasing strategies referred to as loosely coupled strategy and tightly coupled strategy. With the loosely coupled strategy, a buyer attempts to encourage competition among many suppliers and minimize information sharing with those suppliers, whereas with the tightly coupled strategy, the buyer reduces the number of suppliers, increases the exchange of information, and attempts to resolve problems through cooperation with those suppliers.

Based on the discussion so far, we can summarize that a buying firm's relational strategy may be classified as either competitive or cooperative, and that selection of the more appropriate strategy depends on purchasing circumstances (Ferreira, Arantes, & Kharlamov, 2015; Hulthen & Torvatn, 2014; Lee & Paul, 2010). Some studies argue that the cooperative strategy is better than the competitive strategy. However, other studies indicate that this assertion does not always hold true in terms of achieving major purchasing goals (Parker & Hartley, 1997). That is, a buying firm's relational strategy is likely to be selected based on which strategy will maximize the buyer's bargaining power while also taking into account the buyer's own purchase importance and supply risk, and this holds true regardless of the supplier's efforts to enhance its relationships with the buyer.

A good fit between the strategies of a supplier and buyer is likely to produce a better performance outcome. Supplier TSIs should more strongly influence buyer trust and commitment when the buyer employs a cooperative rather than competitive strategy. Supplier TSIs will increase each party's commitment when the buyer employs a cooperative strategy. However, supplier TSIs will increase the buyer's bargaining power and encourage opportunistic behavior, and thus negatively impact buyer commitment, when the supplier is the target of a competitive strategy by the buyer. Therefore, the following is proposed:

Hypothesis 5. Buyer's perception of the supplier's transaction-specific investments will increase buyer commitment more when the buyer uses a cooperative rather than competitive strategy.

2.4. Cost reduction strategies of buying firms: total cost-based strategy versus purchase price-based strategy

Enhancing competitiveness through cost reduction is one of the key goals of a firm's purchasing strategy. Anderson and Katz (1998) point out that, traditionally, companies have focused on reducing purchase prices. However, an overemphasis on purchase price might lead to lower quality and value for customers, in addition to loss of sustainable opportunities. They recommend that a buying firm adopts the concept of total cost of ownership, which considers the costs and activities of both supplier and buyer over a product's complete life-cycle in the context of the competitive forces at work in the relevant purchase category. Helper (1991) proposes two purchasing strategies—exit strategy and voice strategy—based on how a buying firm responds to problems that arise in the buyer-supplier relationship. A variety of problems may occur in this relationship. Suppose a buyer wants a supplier to undertake specific actions, such as lowering prices or raising quality, but that the supplier refuses, either because the supplier is not motivated to do so or because the supplier lacks the capability. With an exit strategy, the buyer's response to problems with a supplier is to find new suppliers, which implies that the buyer may secure compliance by threatening to end the relationship. In contrast, with a voice strategy, a buyer's response is to work with the original supplier until the problem is corrected, which implies that the strategy relies on mutually increased profits as a result of improved product value.

Bensaou (1999) proposes that a buying firm's relationships with suppliers can be classified into four categories depending on the level of specific investments by supplier and buyer that include strategic partnership, captive supplier, captive buyer, and market exchange. He finds that no one type of relationship is inherently superior to the others in terms of performance, and that high-performing and low-performing firms can be found in each category. These results indicate that a buying firm must match its relationship to various product, market, and supplier conditions. For example, a strategic partnership is most appropriate when purchasing technically complex products in a very competitive and concentrated market from a supplier with strong proprietary technology. On the other hand, market exchange is most appropriate when purchasing highly standardized products from many capable suppliers without proprietary technology. As in a buyer's selection of relational strategy, a buyer's selection of a cost reduction strategy is likely to depend on the buyer's bargaining power. More specifically, a purchase price-based strategy will be better when the buyer's power is relatively stronger than that of the supplier, whereas a total cost-based strategy will be preferred when the buyer's power is relatively weaker than that of the supplier. The buyer's commitment, which is strengthened by a supplier's TSIs, will lead to higher supplier performance when the buyer's strategy matches that of the supplier. Accordingly,

Hypothesis 6. Buyer commitment will contribute to improving the buyer's evaluation of supplier performance more when the buyer uses a total cost-based rather than purchase price-based strategy.

3. Methods

3.1. Research model

The conceptual model of this study is shown in Fig. 1. Supplier transaction-specific investment is an antecedent variable, commitment and trust are mediating variables, and supplier performance is an outcome variable. Buyer relational and cost-reduction strategies are moderator variables.

3.2. Sample and respondents

Data were collected through a survey of purchasing managers of

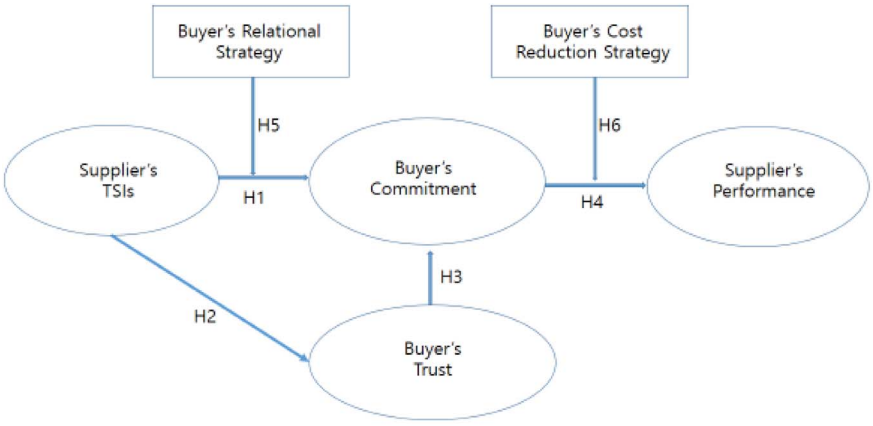

Fig. 1. Research model.

buying firms in Korea; purchasing managers can provide information on supplier TSIs and supplier firm performance, as well as buyer trust and commitment. In most B2B firms in Korea, purchasing managers regard and monitor the transaction volumes of major suppliers as a key index and regularly consider this data as an input for their purchasing strategies (Hur, Kim, & Min, 2013; Kim, 2008; Kim & Kim, 2011). More specifically, purchasing managers closely examine the proportion of and changes in transaction volume for each supplier in monthly reports. This is why we can assume that purchasing managers of buying firms can provide information on TSIs and sales outcomes of major suppliers.

The sample was taken from a listing of the members of Korea Purchasing and Material Management Association (KPMA). Large buying firms are more appropriate for this research because they are more likely to transact with suppliers that actively implement TSIs. The sample was drawn in two stages. First, a sample of firms was drawn from the top 500 companies in terms of 2013 sales revenue, and then one sales manager was selected from each participating firm.

Survey respondents were asked to select their largest supplier firm in terms of transaction volume that had recently implemented TSIs, and to respond to the questionnaire based on their relationship with the selected supplier. The survey was administered via e-mail by KPMA. A total of 248 responses were collected with 231 responses used in the analysis after excluding 17 incomplete responses.

Of the 231 firms, 77.5% are in the manufacturing sector, 9.1% in construction and engineering, and the remaining 13.4% in distribution and other industries. We compared industry distribution of the study sample with that based on industry sales amount in Korea. Primary industries such as agriculture and fishery and pure service industries such as real estate were excluded from the two distributions. The industry sales-based weight is: manufacturing sector 67.6%, construction and engineering 13.9, distribution 6.6%, and other industries 11.9 (Bank of Korea, 2015). The weight of manufacturing industry in this study sample is about 10% point higher and the other industry categories are somewhat lower than the industry sales-based distribution. We judge that this difference does not significantly distort the representativeness of the sample.

In terms of job rank, 46.3% of respondents are assistant managers and 32.9% are managers, with the remaining being in other positions. The business relationship with the supplier in about half of the respondent firms was 5–10 years, with 32% having had a relationship of fewer than five years. Annual sales at 34.5% of responding buyer firms were between one and two million USD, with 29.9% generating sales between 500 thousand and 1 million USD. Average supplier firm size was smaller than that of buyers, with sales at about 37% ranging between 500 thousand and 1 million USD and at 30.7% being between 250 thousand and 5 million USD.

3.3. Operational definitions and measures

Based on previous studies, TSIs are defined as a supplier's investments in assets for a specific buyer which do not have value for other buyers (Morgan & Hunt, 1994). Five items are used to measure TSIs and these include (1) investments in tangible assets which will be lost when the relationship terminates but which form and maintain the exchange relationship with the buyer, (2) human resources, (3) supply processes, (4) transaction termination expenses, and (5) the inability to use the relationship knowledge for the other suppliers (Anderson & Weitz, 1992; Ganesan, 1994). All five items are measured on a five-point Likert scale (1: not at all, 5: very much).

Trust is defined as a buyer's faith in the exchange partner, which includes the buyer's faith in the supplier's words and the conviction that the supplier will fulfill its obligations required by the exchange relationship (Morgan & Hunt, 1994). Four items are used to measure trust, including honesty, trustworthiness, sincerity, and maintaining of secrecy regarding transactions (Anderson & Narus, 1990; Morgan & Hunt, 1994). Commitment is defined as a buyer's recognition that an exchange relationship with a supplier is important, and the buyer's intention to maintain the relationship (Anderson & Weitz, 1992; Morgan & Hunt, 1994). Four items are used to measure commitment, including (1) buyer's intention to engage in stable business, (2) recognition of the importance of maintaining a long-term relationship, (3) intention to maintain an exchange relationship, and (4) recognition of the benefits from maintaining a long-term exchange relationship (Ganesan, 1994; Gundlach et al., 1995; Morgan & Hunt, 1994).

Supplier performance is defined as the degree to which the supplier maintains a long-term exchange relationship with a buyer based on the buyer's trust and commitment which enables the supplier to achieve valuable goals (Han, 2003; Morgan & Hunt, 1994). Five items are used to measure supplier performance, including (1) increase in purchase volume by a buyer, (2) increase in the ratio of the buyer's purchases from the supplier to the buyer's total purchases, (3) the buyer's intention to replace the supplier, (4) the buyer's intention to reduce transaction volume with the supplier, and (5) the buyer's intention to maintain a long-term exchange relationship (Palmatier, Lisa, Kenneth, & Arnold, 2008; Scheer, Miao, & Garrett, 2010). A buyer's relational strategy is classified as either competitive or cooperative (Gadde & Hakansson, 1993; Gelderman & Van, 2003), and four items are used to determine this classification: (1) number of suppliers, (2) type of purchase decision-making, (3) contract period, and (4) amount of information exchanged (Burt, 1989; Gelderman & Van, 2003; Landeros, 1988). A buyer's cost reduction strategy is categorized as either purchase price-based or total cost-based. A purchase price-based strategy is comparatively short-term oriented and aims to reduce purchase prices through competition among various suppliers, whereas a

total cost-based strategy is long-term oriented and aims to reduce not just purchase prices but also total expenses by maintaining cooperative relationships with a few suppliers. Four items are used for this classification: (1) supplier selection through price competition, (2) buyer participation in the supplier's product development, (3) buyer impact on product quality, and (4) buyer efforts to develop alternative suppliers (Anderson, 1998; Bensaou, 1999).

4. Results

4.1. Reliability and validity

The reliabilities of measures were verified using principal component analysis and Cronbach's coefficient α. The KMO values and Bartlett test results indicate that each of the six constructs in this study consists of appropriate measures. The KMO values of the six constructs are distributed between 0.74 and 0.86, and all six variables are significant at $p < 0.01$ in Bartlett tests. The results of principal component analysis show that no item has high loading on two factors or more. Finally, the Cronbach's coefficient α values of the six variables are higher than 0.7 (TSI = 0.88, trust = 0.70, commitment = 0.71, supplier performance = 0.77, relational strategy = 0.92, cost reduction strategy = 0.92), implying that the measures have a high level of internal consistency (Hair et al., 2006).

Confirmatory factor analysis was conducted to test unidimensionality and validity of the four variables: TSI, trust, commitment, and supplier performance. Two items of supplier performance and all items of relational strategy and cost reduction strategy are formative, thus are not included in the analysis (Diamantopoulos & Winklhofer, 2001). Although the χ^2 value of the measurement model is significant ($\chi^2 = 148.89$, d.f. = 122), other fit indices in the results indicate that the model is appropriate: CFI = 0.98, NFI = 0.93, TLI = 0.98, IFI = 0.99, RMSEA = 0.02. Thus, the measurement items in this study are unidimensional. The convergent validities of the scales were examined through the factor loadings in the confirmatory factor analysis shown in Table 1. The factor loadings of all four scales are significant at $p < 0.01$. The composite reliability values are larger than 0.7 and the AVE values are higher than 0.5 (Fornell & Lacker, 1981). Thus, the scales used in the research demonstrate an acceptable level of convergent validity. Discriminant validity was examined by comparing the level of fit of a correlated two-factor model with that of a one-factor model for each pair of all four variables. Every pair of the six combinations showed a significant difference in the χ^2 value at $p < 0.01$, implying that the four variables have an acceptable level of discriminant validity (Anderson & Gerbing, 1988).

Table 1
Results of measurement model analysis.

Variable	Items	Path coefficient	*t*-Value	AVE	CR
TSI	Tangible assets	0.75	11,83	0.66	0.89
	Human resources	0.75	11.73		
	Supply processes	0.79	12.44		
	Termination expenses	0.77	12.10		
	Relationship knowledge	0.78	–		
Trust	Honesty	0.69	9.09	0.61	0.82
	Trustworthiness	0.67	8.89		
	Sincerity	0.66	8.77		
	Secrecy	0.64	–		
Commitment	Stable business	0.68	8.04	0.72	0.88
	Long-term relationship	0.69	8.09		
	Exchange relationship	0.66	7.85		
	Recognition of benefits	0.58	–		
Supplier performance	Intention to replace	0.59	7.91	0.58	0.74
	Intention to reduce	0.59	7.96		
	Intention to maintain	0.61	–		

$\chi^2 = 148.89$, d.f. = 122, χ^2 / d.f. = 1.22, Significant at $p < 0.01$, CFI = 0.98, NFI = 0.93, TLI = 0.98, IFI = 0.99, RMSEA = 0.02.
Two items of supplier performance and all items of relational strategy and cost reduction strategy are not included because they contain formative items.

4.2. Hypothesis tests

A structural equation model of the covariance matrix was employed to test Hypotheses 1 through 4. We employed a Multiple Indicators and Multiple Causes Model because some scales contain formative items (Coltman, Devinney, Midgley, & Venaik, 2008). The results show that although the χ^2 value of the structural model is significant at $p < 0.01$ ($\chi^2 = 215.27$, d.f. = 131), the other fit indexes are within an acceptable range: CFI = 0.95, NFI = 0.89, TLI = 0.94, IFI = 0.95, RMSEA = 0.03. Path coefficients and their significances are as follows: path from TSIs to trust 0.72 ($p < 0.01$), from TSIs to commitment 0.37 ($p < 0.01$), from trust to commitment 0.68 ($p < 0.01$), and from commitment to supplier performance.84 ($p < 0.01$). Thus, Hypotheses 1 through 4 are supported. This shows that supplier TSIs positively influence buyer trust (Hypothesis 1) and commitment (Hypothesis 2), respectively, and that buyer trust positively influences the degree of commitment (Hypothesis 3). Also, buyer commitment positively influences supplier firm performance (Hypothesis 4).

The results imply that buyer commitment plays an important role as a mediator between supplier TSIs and supplier performance (Anderson & Weitz, 1992; Dwyer et al., 1987; Gundlach et al., 1995; Rascovic et al., 2012). This means that supplier TSIs can produce positive return on investment when the investment induces the buyer to increase its own commitment toward the supplier. In this process, supplier TSIs can enhance buyer commitment by increasing buyer trust toward the supplier (Anderson & Narus, 1990; Friedman et al., 2000; Han, 2003; Morgan & Hunt, 1994; Rascovic et al., 2012).

Hypothesis 5 states that supplier TSIs will increase buyer commitment when the buyer uses a cooperative strategy, rather than a competitive one. Respondents were divided into cooperative and competitive groups on the basis of each buyer's relational strategy variable. We tested measurement invariance across groups before conducting multigroup analysis for testing moderation effects (Byrne, 2004). The measurement equality of buyers' relational strategy items was examined by comparing unconstrained CFA model with each of measurement weights constrained model, measurement weights and structural covariances constrained model, and measurement weights, structural covariances, and measurement residuals constrained model. The measurement weights constrained model did not show a significantly different χ^2 value with the unconstrained model as shown in Table 2A, implying that all measures of relational strategy are operating in the same way for the two strategy groups. Additionally, structural covariances constrained model and measurement residuals constrained model exhibit significant χ^2 difference with the unconstrained model, respectively. Therefore we can posit that the measurement model is invariant between the two strategy groups.

To examine the moderating effect of buyer relational strategy, the χ^2 value of the unconstrained model was compared with that of the constrained model as in Table 3A. In the constrained model, the effect of supplier TSIs on buyer commitment was set to be the same for both the cooperative and competitive groups. The results show that the path from TSIs to commitment is much larger in the cooperative group (0.54) than in the competitive group (0.23). Also, the constrained model ($\chi^2 = 473.37$, d.f. = 259) has a larger χ^2 value than the unconstrained model ($\chi^2 = 468.51$, d.f. = 258), and the χ^2 difference ($\Delta\chi^2 = 4.86$) is significant at $p < 0.05$, implying that the unconstrained model is superior to the constrained model. This result is

Table 2
Measurement invariance tests.

Model	NPAR	CMIN	DF	Significance	CMIN/DF	$\Delta\chi^2$/df	Significance of $\Delta\chi^2$
A. Measurement invariance across relational strategy groups							
Unconstrained	108	248.24	196	< 0.01	1.267		
Measurement weights	96	259.13	208	< 0.01	1.246	10.89/12	NO
Structural covariances	70	472.00	234	< 0.01	2.017	223.76/38	YES
Measurement residuals	54	478.00	250	< 0.01	1.912	229.76/54	YES
B. Measurement invariance across cost reduction strategy groups							
Unconstrained	134	287.12	244	< 0.01	1.177		
Measurement weights	122	302.92	256	< 0.01	1.183	15.80/12	NO
Structural covariances	83	556.96	295	< 0.01	1.888	269.84/51	YES
Measurement residuals	67	573.11	311	< 0.01	1.843	285.99/67	YES

consistent with the direction of Hypothesis 5. Therefore, Hypothesis 5 is supported.

Hypothesis 6 states that buyer commitment will positively influence supplier performance when the buyer uses a total cost-based strategy rather than a purchase price-based strategy. Respondents were categorized into two groups based on whether they pursued cost reduction through a purchase price-based strategy or a total cost-based strategy. The measurement invariance of buyers' cost-reduction strategy items was confirmed as shown in Table 2B.

To examine the moderating effect of a buyer's cost reduction strategy, the χ^2 value of the unconstrained model was compared with that of the constrained model as in Table 3B. In the constrained model, the effect of buyer commitment on supplier firm performance was set at the same value for both the purchase price-based and total cost-based groups. The results show that the path from commitment to performance is larger in the total cost-based group (0.79) than in the purchase price-based group (0.51). Also, the constrained model (χ^2 = 475.69, d.f. = 261) has a larger χ^2 value than the unconstrained model (χ^2 = 471.70, d.f. = 260), and the χ^2 difference ($\Delta\chi^2$ = 3.99) is significant at $p < 0.05$, implying that the unconstrained model is better than the constrained model at explaining the effects. This is consistent with the direction of Hypothesis 6. Therefore, Hypothesis 6 is supported.

5. Discussion

5.1. Summary of findings and implications

This study examined whether supplier TSIs influence supplier performance through buyer trust and commitment, and whether buyer purchasing strategy moderates the relationship. There are four major findings. First, we find that supplier TSIs positively affect buyer trust and commitment, that in turn affect supplier firm performance. This result is consistent with previous studies (Anderson & Weitz, 1992; Dwyer et al., 1987; Gundlach et al., 1995; Kalwani & Narayandas, 1995; Li et al., 2014; Morgan and Hunt, 1994; Palmatier et al., 2008). The effect of supplier TSIs on supplier performance occurs indirectly through buyer trust and commitment. Obtaining buyer commitment and trust is a key factor in supporting supplier efforts to achieve positive return from supplier TSIs.

Second, the effect of supplier TSIs on buyer commitment and supplier performance is moderated by the type of purchasing strategy the buyer adopts. Previous studies in relationship marketing have discussed the moderating effect of buyer purchasing strategies (Gelderman & Van, 2003; Kraljic, 1983; Lee & Paul, 2010). However, the insight that buyer purchasing strategy consists of two elements—relational strategy (competitive versus cooperative) and cost reduction strategy (purchase price-based versus total cost-based)—is a new finding. These two strategies exercise moderating influences at different stages.

Third, the influence of supplier TSIs on buyer commitment varies depending on whether the buyer adopts a competitive or cooperative purchasing strategy. A buyer is expected to select a competitive or cooperative strategy in order to obtain a better purchase outcome, and this decision will inevitably influence the supplier's outcome positively or negatively. We find that a supplier could obtain more commitment when a buyer adopts a cooperative strategy, as opposed to a competitive strategy. Accordingly, we recommend that suppliers should take buyer purchasing strategy into consideration when deciding on supplier

Table 3
Tests of moderating effect.

A. Moderating effect of relational strategy

Path	Relational strategy		χ^2	d.f.	$\Delta\chi^2$
	Competitive (N = 108)	Cooperative (N = 123)			
Unconstrained model	–	–	468.51*	258	
TSI → commitment (constrained model)	0.23*	0.54*	473.37*	259	4.86

B. Moderating effect of cost reduction strategy

Path	Cost reduction strategy		χ^2	d.f.	$\Delta\chi^2$
	Purchase price-based (N = 114)	Total cost-based (N = 117)			
Unconstrained model	–	–	471.70*	260	–
Commitment → performance (constrained model)	0.51*	0.79*	475.69*	261	3.99

* Significant at $p < 0.01$, N = sample size.

marketing strategy even though buyer purchasing strategies have been viewed primarily only as means for buyers to obtain better prices or delivery options for themselves.

Fourth, the influence that buyer commitment has on supplier firm performance varies depending on whether the buyer adopts a purchase price-based or total cost-based purchasing strategy. The improvement in supplier firm performance resulting from an increase in buyer commitment is higher when the buyer adopts a total cost-based strategy versus a purchase price-based strategy. This is consistent with the shift of focus in purchasing, which has moved from availability to minimum cost and, more recently, to total cost of purchasing (Pop & Sitar, 2012).

From a theoretical perspective, this study contributes to the literature by suggesting a new approach that integrates discussions of TSIs in relationship marketing with those of buyer purchasing strategies. Buyer purchasing strategies are very likely to interact with supplier strategies and affect supplier performance outcomes because supplier and buyer strategies interact in the process of producing outcomes. This interaction and its outcomes have not been studied previously, and this study is a response to the call for this much needed research (Olsen & Ellram, 1997b).

Our research has several managerial implications. Marketing managers of supplier firms need to examine the level of fit between their own firms' TSIs and their buyers' purchasing strategies when making TSIs decisions. Suppliers should maximize outcomes from TSIs when dealing with buyers that seek cooperative relational and total cost-based strategies. In contrast, suppliers will be better off allocating more marketing resources to lowering prices, rather than on TSIs, when targeting buyers that seek competitive relational and purchase price-based strategies.

5.2. Limitations and future research directions

More research is needed to address the limitations of this study. First, the purchasing strategies examined are from Kraljic (1983)'s classification based on purchase importance and supply risk factors. Recently, additional classifications have been developed in the literature, and future studies can employ these other purchasing strategy classifications to increase factor explanatory power.

Second, there are a wide variety of relationship marketing variables other than TSIs that enhance the supplier-buyer relationship, such as flexibility of response, communication, and specialization. Employing additional relationship marketing variables is likely to lead to a broader understanding of the roles and effects of buyer purchasing strategies and the interactions these buyer purchasing strategies have with supplier strategies. Third, this study focused on buyer purchasing strategy as a factor that influences supplier strategic outcomes. Buyer organizational, environmental, and top management factors are likely to influence buyer purchasing strategy decision. Taking management and organizational factors into consideration will help researchers understand the interactions between suppliers and buyers more deeply.

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