Strategic purchasing, supply management, and firm performance

Injazz J. Chen\textsuperscript{a,}\*, Antony Paulraj\textsuperscript{a,1}, Augustine A. Lado\textsuperscript{b,2}

\textsuperscript{a}Department of Operations Management and Business Statistics, College of Business Administration, Cleveland State University, Cleveland OH 44115, USA

\textsuperscript{b}School of Business, Clarkson University, 8 Clarkson Street, P.O. Box 5790, Potsdam, NY 13699, USA

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Abstract

Purchasing has increasingly assumed a pivotal strategic role in supply-chain management. Yet, claims of the strategic role of purchasing have not been fully subjected to rigorous theoretical and empirical scrutiny. Extant research has remained largely anecdotal and theoretically under-developed. In this paper, we examine the links among strategic purchasing, supply management, and firm performance.

We argue that strategic purchasing can engender sustainable competitive advantage by enabling firms to: (a) foster close working relationships with a limited number of suppliers; (b) promote open communication among supply-chain partners; and (c) develop long-term strategic relationship orientation to achieve mutual gains. Using structural equation modeling, we empirically test a number of hypothesized relationships based on a sample of 221 United States manufacturing firms. Our results provide robust support for the links between strategic purchasing, supply management, customer responsiveness, and financial performance of the buying firm. Implications for future research and managerial practice in supply-chain management are also offered.

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1. Introduction

With the growing importance of supply-chain management, purchasing has assumed an increasingly pivotal strategic role, evolving from an obscure buying function into a strategic business partner (Ellram and Carr, 1994; Cooper and Ellram, 1993). Researchers have documented how strategic purchasing actively participates in corporate planning process (Cavinato, 1999), facilitates beneficial organization-environment alignment (Carter and Narasimhan, 1996), and fosters cross-functional integration among supply-chain activities, among other things. Moreover, purchasing plays a key liaison role between external suppliers and internal organizational customers in creating and delivering value to external customers (Novack and Simco, 1991).
Although the role of strategic purchasing in promoting cross-functional, intra-organizational relationships has been relatively well documented (Ellram and Carr, 1994; Porter, 1985), its role in fostering effective strategic collaboration between a focal firm and its suppliers has not yet been rigorously investigated (Landeros and Monczka, 1989; Young and Varble, 1997). Given the increasing emphasis on building and managing buyer-supplier relationships (or supply management) as the basis of sustainable competitive advantage (Dyer and Singh, 1998; Kale et al., 2000; Leenders et al., 2002), a systematic empirical investigation of the extent to which strategic purchasing contributes to the development of supply management capabilities is warranted. These capabilities include the firm’s ability to: (a) foster close working relationships with a limited number of suppliers; (b) promote open communication among supply-chain partners; and (c) develop long-term strategic orientation to achieve mutual gains. Collectively, these capabilities can engender sustainable competitive advantage by enabling a firm to build and leverage beneficial inter-organizational relationships. Additionally, extant research, though anecdotal and disjointed, has stressed that customer responsiveness is an essential component of competitive advantage (Stalk and Hout, 1990; Jayaram et al., 1999; Stank et al., 1999) and that purchasing and supply management can have a profound impact on a firm’s financial performance (Ellram and Liu, 2002; Singhal and Hendricks, 2002).

Therefore, in this paper, we examine the extent to which strategic purchasing fosters supply management capabilities. Using structural equation modeling, we empirically investigate the relationships among strategic purchasing, supply management, customer responsiveness and financial performance. A systematic empirical investigation of these relationships would go a long way in establishing the extent to which strategic purchasing contributes to the firm’s “bottom line”. Furthermore, such an investigation would document the extent to which strategic purchasing, in fact, fosters the organizational capabilities necessary for effective supply-chain management. Structural equation modeling provides a robust basis for empirically corroborating or falsifying these claims.

The rest of our paper is structured as follows. In Section 2, we develop a synthesis of the literature in dynamic capabilities to provide a conceptual foundation for our model. Then, we develop the logic of the substantive relationships among the study variables and state hypotheses. In Section 3, we explain our research methodology and analysis, including data collection procedure, construct operationalization and measurement, hypothesis testing and results. Section 4 presents discussion and implications of the study findings. In Section 5, we highlight limitations of the study along with suggestions for future research.

2. Conceptual framework and hypotheses

2.1. Dynamic capabilities and competitive advantage

Dynamic capabilities refer to “the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” (Teece et al., 1997, p. 516). As invisible, knowledge-based phenomena, organizational capabilities enable firms to acquire, develop, and deploy resources, convert these resources into value-enhancing products, and transform resources into “distinctive competencies” (Itami and Roehl, 1987).

Organizational capabilities can engender sustainable competitive advantage in so far as they: (1) are not tradable in strategic factor markets; (2) take a long time to develop and are historically based and path dependent; and (3) entail socially complex relationships with other organizational resources (Barney, 1991; Reed and DeFillippi, 1990). Further, sustainability of competitive advantage is enhanced when it is difficult to decipher causal relationships between organizational capabilities and outcomes (Lippman and Rumelt, 1982). In contrast, organizational capabilities that are “supplemental” or “enabling” may only “establish the minimum basis for competition”, but, by themselves, are not sufficient to engender sustainable competitive advantage (Leonard-Barton, 1995, p. 18). When organizational capabilities erode in value over time either because of shifts in environmental conditions or organizational complacency, or both, they can become “core rigidities” and lead to competitive disadvantage (Leonard-Barton, 1995).

Researchers who take a dynamic capabilities perspective focus on investigating the processes by which
resources are acquired or accessed, transformed and deployed to create and deliver superior value to customers (Lado et al., 1992). As organizational capabilities enable a firm to enact or seize opportunities or neutralize threats from turbulent environments, they can greatly enhance the firm’s competitive (and survival) prospects (Eisenhardt and Martin, 2000). Moreover, because they expand in value when they are shared, and are “non-excludable” in that one party’s use does not preclude another party from using them (Romer, 1990), dynamic capabilities can engender synergistic, positive-sum gains through collaboration (Lado et al., 1997; Madhok and Tallman, 1998).

2.2. Dynamic capabilities and supply management

Given the increasing importance of strategic collaboration among firms (Contractor and Lorange, 1988; Kanter, 1994; Dyer, 2000), the issue of how firms build dynamic capabilities for effectively managing supply-chain partners to achieve sustainable competitive advantage has attracted a great deal of scholarly attention (Dyer and Singh, 1998; Kale et al., 2000; Lorenzoni and Lipparini, 1999). Variously referred to as “relational capital” (Kale et al., 2000), “relational resources” (Sanchez, 1995), or “relational capabilities” (Lorenzoni and Lipparini, 1999), these capabilities enable firms to acquire or access rent-yielding resources through strategic collaboration (Das and Teng, 2000; Eisenhardt and Schoonhoven, 1996).

The accumulation of non-tradable resources and capabilities through strategic collaboration requires that firms adopt a different managerial mindset for building strategic advantage compared to that adopted by firms competing alone (Omae, 1989). Strategic leaders in such firms articulate a “strategic intent”, reflecting an obsession with winning in the world marketplace by creating an imbalance between the firm’s strategic goals and their current stocks of resources and capabilities (Hamel and Prahalad, 1994). Such a strategic intent then drives firms to acquire, access, or develop additional resources through cooperation. Furthermore, this mindset requires that firms adopt a long-term orientation and emphasize building “collaborative advantage” (Kanter, 1994) through the development and deployment of supply management capabilities (Dyer, 2000). Eisenhardt and Schoonhoven (1996) argue that firms enter into strategic partnerships either to gain access to or acquire unique and valuable resources that they lack, or to leverage “social” resources, such as reputation, status, and legitimacy. Thus, firms with a strategic orientation that emphasizes cooperation among supply-chain partners are more likely to achieve greater economic benefits compared to firms that subscribe to the traditional, zero-sum-based notion of competition. For example, Toyota’s cooperation with its suppliers significantly enhances its competitive position as well as that of its suppliers in the global automobile industry (Dyer and Nobeoka, 2000).

2.3. Conceptual model and hypotheses

Fig. 1 depicts our conceptual model linking strategic purchasing, with supply management capabilities (close relationships with a limited number of suppliers, long-term orientation, and communication), customer responsiveness, and financial performance. Grounded in the “relational view” of strategic management (Dyer and Singh, 1998) and supply-chain management (Chen and Paulraj, 2004a), this model is based on the premise that in order to contribute effectively to building and sustaining strategic advantage, purchasing must facilitate the development and deployment of dynamic supply management capabilities for effectively managing supply-chain partnerships (Lorenzoni and Lipparini, 1999; Takeishi, 2001). Strategic purchasing accomplishes this feat when it is aligned with supply-chain activities, functions, and systems to achieve operational efficiency and flexibility (Norman and Ramirez, 1993). When purchasing and supply management executives participate in articulating and communicating unique strategic vision for achieving synergistic benefits through strategic collaboration (Kanter, 1994; Lado et al., 1997), they may generate “managerial rents” and superior firm performance (Mahoney, 1995). Furthermore, strategic purchasing may contribute to firm performance through enhancing customer responsiveness (Jayaram et al., 1999) and “bottom line” (Ellram and Liu, 2002). To keep our discussion manageable, we assume the perspective of the buyer firm in investigating the links among strategic purchasing, supply
management, customer responsiveness and financial performance.

2.3.1. Strategic purchasing and supply management

Carr and Smeltzer (1999) have documented how firms with strategic purchasing are able to foster long-term, cooperative relationships and communication, and achieve greater responsiveness to the needs of their suppliers. Although other factors, such as restructuring and governance, and transaction cost economizing (Williamson, 1991) are also important for understanding strategic purchasing and its linkage to supply management, they are beyond the scope of this investigation.

Strategic purchasing fosters communication, which is critical to achieving effective integration throughout the supply chain (Cox, 1996; Kraljic, 1983). Effective communication contributes to the development and maintenance of inter-organizational routines that have been documented to enhance a firm’s capability for effectively managing strategic alliance (Zollo et al., 2002). Furthermore, the use of open, informal channels of communication is key to developing and leveraging tacit knowledge, a critical source of strategic advantage (Nonaka and Tekeuchi, 1995). When the firm and its suppliers communicate openly and frequently, they can expand their knowledge and understanding of complex competitive issues through greater discovery and disclosure of information.

Empirical research shows that strategic alliances in which partners exchange timely, accurate, and relevant information, and share critical and “sensitive” information are more successful than alliances that do not exhibit those communication behaviors (Mohr and Spekman, 1994).

Strategic purchasing is considered critical to fostering and facilitating close interactions with a limited number of suppliers, thus making effective use of the firm’s supply base (Cousins, 1999). Firms that foster close, cooperative relationships with their suppliers have reported substantial revenue gains and cost savings (Landeros and Monczka, 1989; Cooper and Ellram, 1993). Researchers who invoke transaction cost theory have argued that the reduction of a firm’s supplier base may expose the firm to transaction-related risk arising from supplier opportunism and loss of flexibility because of high relationship-specific investments (Williamson, 1991). However, the relational competency perspective suggests that having close ties with a limited number of suppliers and increasing investments in relationship-specific assets ultimately fosters greater trust, dependability and cooperation among supply-chain partners (Sako and Helper, 1998; Dyer and Singh, 1998). Trust and trustworthiness gain strategic value precisely when conditions exist for a partner to behave opportunistically, but the partner chooses not to do so in order to realize mutual gains (Ring and Van de Ven, 1994).

Fig. 1. A proposed model of strategic supply management.
Therefore, the ability to foster close working relationships based on trust may form the basis of collaborative advantage (Kanter, 1994; Dyer, 2000).

Researchers have argued that a “relationship-based” orientation is more likely to be associated with the development and maintenance of long-term strategic alliances, compared to a “transaction-based” orientation (Baker, 1990). When alliance partners adopt a relationship orientation, they are more likely to focus on knowledge development and exchange and increase investment in “relationship-specific assets” (Madhok and Tallman, 1998). As these assets are “socially created”, resulting from collaborative relationships that are developed over a long period of time, because they require continual investment and interaction on the part of partners, and because they are not tradable in strategic factor markets (Dierickx and Cool, 1989), they can confer durable economic (and social) benefits to alliance partners (Dyer and Singh, 1998).

Thus, by promoting long-term relationships between the focal firm and its suppliers, strategic purchasing can foster greater commitment and trust, which are central to relationship marketing and management. Researchers have empirically documented how relationship commitment and trust foster greater cooperation, reduce functional conflict, enhance decision making under conditions of uncertainty and ambiguity, and reduce the propensity of partners to exit the exchange relationship (Morgan and Hunt, 1994). As exchange parties that adopt a long-term strategic orientation tend to rely on “understandings and conventions involving fair play and good faith” (Okun, 1980, p. 8), any agreements between them are enforceable only through internal processes rather than through external arbitration or the courts (Dyer and Singh, 1998). Thus, we argue that strategic purchasing contributes to effective supply management when it fosters a long-term strategic orientation (or long-term orientation) between the firm and its suppliers.

In contrast, a short-term-oriented, adversarial buyer–supplier relationship focused on transaction cost economizing can inhibit the development of supply management capabilities, create conditions for distrust, and heighten the need for exchange parties to erect more costly and complex governance mechanisms for curbing opportunistic behavior, which ultimately dissipates any benefits accruing to relational exchanges between the supply-chain partners (Ghoshal and Moran, 1996). This discussion forms the basis of the following hypotheses:

**H1.** Strategic purchasing will have a positive effect in fostering buyer–supplier communication.

**H2.** Strategic purchasing will have a positive effect in fostering close relationships with a limited number of suppliers.

**H3.** Strategic purchasing will have a positive effect in fostering long-term buyer–supplier relationships.

2.3.2. Supply management and customer responsiveness

Increasingly, companies are emphasizing working closely and cooperatively with a limited number of suppliers that are trustworthy rather than the traditional, arms-length, adversarial mode of transacting business with a large number of suppliers (Grover and Valsamakis, 1998; Helper, 1991). A close relationship means that supply-chain members share information, risks and rewards, can fully rely on each other, and are willing to maintain the relationship for the long haul (Guimaraes et al., 2002; Cooper and Ellram, 1993; Landeros and Monczka, 1989). Researchers have documented the benefits of this relational contracting approach (Macneil, 1986), including: (1) fewer suppliers to contact in the case of orders given on short notice; (2) reduced inventory management costs (Trevelen, 1987); (3) increased economies of scale based on order volume and the learning curve effect (Hahn et al., 1986); (4) reduced lead times due to dedicated capacity and work-in-process inventory from the suppliers; (5) reduced logistical costs due to proximal location between buyers and suppliers (Bozarth et al., 1998); (6) improved buyer–supplier relationships in product design relationship (De Toni and Nassimbeni, 1999); (7) greater trust fostered through open, frequent, and two-way communication between buyers and suppliers (Newman, 1988); (8) greater supplier reliability in component production and delivery (Anderson et al., 1994); and (9) better customer service and market penetration (St. John and Heriot, 1993).

Close working relationships foster and deepen trust and cooperation (Ring and Van de Ven, 1994), facil-
itiate knowledge development and exchange (Nonaka and Tekeuchi, 1995), and enable exchange partners to detect and address operational issues early in the production process (Ragatz et al., 1997), among other things. Such collaborative relationships can enhance a firm’s ability to respond effectively to the needs of its customers. Establishing close relationships with a limited number of suppliers, when properly and selectively used (Bensaou, 1999), has been directly linked to customer responsiveness (Stanley and Wisner, 2001) and financial performance (Carr and Pearson, 1999). Many companies have achieved substantial cost savings by reducing the number of suppliers in their supplier base and deepening the relationships with remaining suppliers (Guimaraes et al., 2002). In doing so, they also expect to improve their customer responsiveness (Johnston et al., 2004). Thus,

H4. Close working relationships with a limited number of suppliers will have a positive effect on customer responsiveness.

Open, frequent communication is critical to the maintenance of value-enhancing relationships (Christopher, 1992; Slack, 1991). The frequent exchange of information on strategic and operational matters fosters greater confidence and reduces dysfunctional conflict between the exchange partners (Dwyer et al., 1987; Anderson and Weitz, 1992). When buyers and suppliers share important information relating to materials procurement and product design issues, they are likely to improve the quality of their products, reduce customer response time, and increase cost savings through greater product design and operational efficiencies (Carr and Pearson, 1999; Turnbull et al., 1992). Some of these cost savings are then passed on to the customers in the form of higher perceived value and lower prices (Brandenburger and Stuart, 1996).

Carter and Miller (1989) found that when communication occurs among design, engineering, quality and other functions between buyer and supplier firms, in addition to the purchasing-sales interface, the supplier’s quality performance is superior to that experienced when only the buying firm’s purchasing department and supplier’s sales department act as the inter-firm information conduit. In their case study, Newman and Rhee (1990) found that many supplier product problems were due to poor communication.

Researchers have noted that poor communication is often a fundamental weakness in the interface between a buying firm and its supplier, which undermine the buying firm’s efforts to achieve increased levels of supplier performance (Galt and Dale, 1991). The upshot is that effective communication between supply-chain partners can create trust and enable them to access partners’ resources and capabilities that would not be available through arms-length, spot-market contracting (Lengnick-Hall, 1998).

Clearly, effective communication improves the buying firm’s performance (D’Amours et al., 1999; Walton and Marucheck, 1997) and is an important factor in the development of supply management capabilities (Zollo et al., 2002) and supply-chain relationships (Mohr and Sohi, 1995). Furthermore, frequent and collaborative communication with key suppliers will benefit the buying firms in the long run (Carr and Pearson, 1999), as it fosters a climate of mutual support, thereby improving customer responsiveness among channel partners (Mohr et al., 1996). Thus,

H5. Communication between buyers and supplier will have a positive effect on customer responsiveness.

Firms are increasingly looking to their suppliers to help them achieve a stronger competitive position, and such a strong competitive position can be achieved only by developing a sustainable competitive advantage created through long-term relationships with their suppliers (Ganesan, 1994). Researchers have argued that companies gain benefits when they place a larger volume of business with a limited number of suppliers using long-term contracts (Helper and Sako, 1995; Krause and Ellram, 1997; Guimaraes et al., 2002). Through a long-term relationship, the supplier will become part of a well-managed chain and thus have a lasting effect on the competitiveness of the entire supply chain (Choi and Hartley, 1996). Martin et al. (1995) indicate that extending the term of a relationship between buyers and suppliers may be positively related to the degree of buyer–supplier communication. Additionally, Bensaou and Venkatraman (1995) assert that once a high degree of trust is established through long-term relationships between buyer and supplier firms, it follows that the level of communication will increase between the firms.
Present-day competitiveness has brought about a marked evolution in supply management where the achievement of superior performance in terms of cost, quality, and customer responsiveness is increasingly dependent on longer-term relationships with suppliers (De Toni et al., 1994). Zeller and Gillis (1995) demonstrate that businesses can improve their competitiveness and meeting the customer’s needs by implementing a cooperative long-term supplier relationship. Long-term cooperative relationships have been found to have a positive impact on a firm’s competitiveness, especially when the level of uncertainty is relatively high (Noordewier et al., 1990). More specifically, supply-chain integration (Vickery et al., 2003) and supplier capability management (Narasimhan and Jayaram, 1998), both characterized by long-term relationship orientation, were found to positively affect customer responsiveness. Furthermore, recent research shows that higher levels of trust and cooperation evident in long-term relationships lead to superior customer responsiveness and other firm performance (Jones et al., 1997; Handfield and Nichols, 1999). Thus,

**H6.** Long-term relationship orientation will have a positive effect on customer responsiveness.

### 2.3.3. Customer responsiveness and buyer financial performance

Recent research has stressed that purchasing and supply management can have a profound impact on firms’ financial performance (Ellram and Liu, 2002; Singhal and Hendricks, 2002). The advent of time-based competition has elevated the strategic importance of customer responsiveness (Stalk and Hout, 1990). Customer responsiveness describes a firm’s ability to respond in a timely manner to customers’ needs and wants (Tunc and Gupta, 1993). Accordingly, a firm’s ability to respond promptly to customers’ needs may be a source of enduring competitive advantage (Cusumano and Yoffie, 1998). Among the benefits associated with superior customer responsiveness are: (1) greater customer loyalty and repeat purchase; (2) greater customers’ willingness to pay a price premium for higher product quality; and (3) greater ability to continually improve the firm’s product-delivery system and effectively adapt to strategic requirements (Stalk and Hout, 1990). A recent study concludes that customer responsiveness is rated as the highest in terms of strategic importance (Jayaram et al., 1999). Customer responsiveness also has been recognized in the agility literature as a key aspect of time-based performance (Kim, 1994). The literature also identifies rapid confirmation of orders and rapid handling of customer complaints as two key indicators of customer responsiveness (Stalk and Hout, 1990).

Thus, customer responsiveness is a key building block of competitive advantage (Hill and Jones, 2001). Some researchers have argued that customer responsiveness transcends other measures of competitive advantage in that it permeates all the value-adding activities and functions of the supply-chain system (Jayaram et al., 1999). In a similar spirit, customer service, encompassing customer responsiveness, was recently found to have a direct positive relationship with financial performance (Chang and Chen, 1998; Vickery et al., 2003). These studies provide empirical support for our final hypothesis:

**H7.** Customer responsiveness is positively related to buyer firm’s financial performance.

### 3. Methodology

#### 3.1. Survey instrument

The items tapping the theoretical constructs were developed based on an extensive literature review. They were measured on a seven-point Likert scale with anchors ranging from strongly disagree (1) to strongly agree (7) in order to ensure high statistical variability among the survey responses. With respect to the dependent variable (performance), respondents were asked to indicate the changes in performance measures—customer responsiveness return on investment, profits as a percent of sales, and net income before tax—over the past 3 years (Miller, 1991; Germain et al., 2001). These indicators were measured using seven-point Likert scales with anchors ranging from “decreased significantly” (1) to “increased significantly” (7).

Prior to data collection, the survey instrument was pre-tested for content validity in two stages. In the first stage, six experienced researchers were asked to critique the questionnaire for ambiguity, clarity,
appropriateness of the items used to operationalize each construct (DeVellis, 1991). These researchers were also asked to assess the extent to which the indicators sufficiently addressed the subject area (Dillman, 1978). Based on feedback received from these researchers, the instrument was modified to enhance clarity and appropriateness of the measures purporting to tap the constructs. In the second stage, the survey instrument was mailed to 42 purchasing executives affiliated with the Institute for Supply Management (ISM). These executives were asked to review the questionnaire for structure, readability, ambiguity, and completeness. The final survey instrument incorporated feedback received from these executives, which enhanced the clarity of the instruments. This process yielded a survey instrument that was judged to exhibit high content validity.

3.2. Data collection

This study utilized a cross-sectional mail survey of a sample of US manufacturing companies drawn from the ISM membership directory. Specifically, six two-digit SIC codes were covered in the survey: 34 “fabricated metals”; 35 “industrial and commercial machinery”; 36 “electronic and electrical equipment”; 37 “transportation equipment”; 38 “instruments and measurements equipment”; and 39 “other”. One thousand respondents were selected from a list of 2500 Title 1 and 2 ISM members. The title of the specific respondent sought was primarily Vice President or Director of Purchasing, Supply Chain Management, and Materials Management.

In an effort to increase the response rate, a modified version of Dillman’s (1978) total design method was followed. Survey questionnaires were sent to respondents via first-class mail; each survey included a cover letter and a postage-paid return envelope. Two weeks after the initial mailing, reminder postcards were sent to all potential respondents. For those who did not respond a second wave of surveys, cover letters, and postage-paid return envelopes were mailed approximately 28 days after the initial mailing. Out of 280 responses received, 48 were undeliverable due to address discrepancies; of the remaining 232 responses, 11 were discarded due to incomplete information, resulting in an effective response rate of 23.2% (221/952). Considering the length of the survey, this response rate is quite satisfactory and compares favorably with other empirical studies in supply-chain management (Choi and Hartley, 1996; Stanley and Wisner, 2001).

To test for non-response bias, we compared the responses of early and late waves of returned surveys based on the assumption that the opinions of late respondents are representative of the opinions of non-respondents (Armstrong and Overton, 1977; Lambert and Harrington, 1990). Following established practice, we used demographic variables (e.g. Chen et al., 2000), as well as other randomly selected variables (e.g. Swink, 1999; Stanley and Wisner, 2001) to test for non-response bias. Student’s t-tests yielded no statistically significant differences between early-wave (123 responses) and late-wave (98 responses) groups, suggesting that non-response bias was not a problem.

The final sample consisted of 35 presidents/vice-presidents (16%), 138 directors (62%), 33 purchasing managers (15%), and 15 others (7%). The respondents worked primarily for medium to large firms with nearly 36% working for firms employing more than 1000 employees. Nearly 60% of the firms had a gross income $100 million. The respondents were also distributed evenly among the six SIC codes selected.

3.3. Measures

The indicators used to measure the theoretical constructs are based on an extensive review of related literature. Items tapping the construct “Strategic Purchasing” include the extent to which: (a) purchasing is included in the firm’s strategic planning process; (b) purchasing performance is measured in terms of its contributions to the firm’s success; (c) purchasing professionals have a good knowledge of the firm’s strategic goals; and (d) purchasing professionals’ development focuses on elements of the competitive strategy (Carr and Smeltzer, 1997; Cavinato, 1999; Carter and Narasimhan, 1993). The construct “Limited Number of Suppliers” is operationalized by indicators reflecting the extent to which firms increasingly emphasize close, relational contracting with a smaller number of dedicated suppliers (Kekre et al., 1995; Bozarth et al., 1998; Shin et al., 2000). “Long-term Orientation” is operationalized by items tapping the extent to which the buying firm: (a) expects its relationships with key suppliers to last a long time; (b)
works closely with key suppliers to improve product quality; and (c) views the suppliers as an extension of the company; in turn (d) suppliers see their relationship with the buying firm as a long-term alliance (Krause and Ellram, 1997; Shin et al., 2000). The construct “Communication” is operationalized to include the extent to which the firm and its key suppliers: (a) share critical, sensitive information related to operational and strategic issues; (b) exchange such information frequently, informally and/or in a timely manner; (c) maintain frequent face-to-face meetings; and (d) closely monitor and stay abreast of events or changes that may affect both parties (Krause and Ellram, 1997; Carr and Pearson, 1999; Carr and Smeltzer, 1999).

The construct of “Customer Responsiveness” is measured by indicators tapping the firm’s ability to respond in a timely manner to the needs and wants of its customers, through: (a) rapid confirmation of orders; and (b) rapid handling of customer complaints (Stalk and Hout, 1990). Finally, following past practice, “Financial Performance” for the buying firm is operationalized by items indicating the extent of changes in: (a) return on investment; (b) profits as a percent of sales; and (c) net income before tax over the past 3 years (Carr and Smeltzer, 1999; Jayaram et al., 1999; Kathuria, 2000). As it is often difficult to obtain objective data on operational and financial issues (Narasimhan and Das, 2001), we relied on senior executives’ perceptions of their companies’ financial performance, which have been adopted by other researchers (e.g. Germain et al., 2001), and also shown to correspond closely to objective measures of financial performance (Venkatraman and Ramanujam, 1986).

3.4. Analytical procedure

A three-stage continuous improvement cycle was used to develop measures that satisfied all the requirements for reliability, validity and unidimensionality (Chen and Paulraj, 2004b). To assess the reliability of the study constructs, we used the average correlation among items in a scale (Cronbach, 1951; Nunnaly, 1978). As can be seen in Appendix A, the Cronbach’s alpha values (α) for the variables were well above the cut-off of 0.60 (Cronbach, 1951; Nunnaly, 1978) and ranged from 0.65 for “limited number of suppliers” to 0.97 for “financial performance”.

Initially, construct validity was assessed via exploratory factor analysis (EFA) using principal component analysis with varimax rotation (Loehlin, 1998). Since the number of constructs was determined prior to the analysis, the exact number of factors to be extracted was provided in this analysis. Items that cross-loaded on two or more factors were discarded. Then, a confirmatory factor analysis (CFA) was used to assess construct validity and unidimensionality. CFA provides a stricter and more precise test of unidimensionality of latent constructs (Gerbing and Anderson, 1988). As all the constructs are made up of more than one indicator item, the constructs were made scale-variant by fixing one of the loadings in each construct to a value of 1.0 (Joreskog and Sorbom, 1999).

To test for convergent validity, we investigated the extent to which each individual item’s coefficient is greater than twice its standard error (Anderson and Gerbing, 1988). The larger the t-values, the stronger the evidence that the individual items represent the underlying factors. Furthermore, the proportion of variance (R²) in the observed variables accounted for by the theoretical constructs influencing them can be used to estimate the reliability of an indicator. In previous studies, R²-values above 0.30 were considered acceptable (e.g. Carr and Pearson, 1999). As shown in Table 1, the CFA results indicate that all of these conditions are met, suggesting that all indicators are significantly related to their underlying theoretical constructs.

To establish discriminant validity, we constructed models for all possible pairs of latent constructs. These models were tested on each selected pair by: (a) allowing for correlation between the two constructs; and (b) fixing the correlation between the constructs at 1.0. A significant difference in chi-square values for the fixed and free solutions indicates the distinctiveness of the two constructs (Bagozzi et al., 1991). The chi-square difference was tested for statistical significance at P < 0.001 confidence level. For the six constructs, a total of 15 different discriminant validity checks were conducted. All the differences (given in χ²) between the fixed and free solutions are significant, providing strong evidence of discriminant validity among the theoretical constructs.

Unidimensionality—the extent to which a set of indicators reflect a single underlying construct—was
assessed by fulfilling two conditions (Gerbing and Anderson, 1988; Hair et al., 1995). First, an item must be significantly associated with the empirical indicators of a construct and, second, it must be associated with one and only one construct. Unidimensionality was established by assessing the overall fit of the CFA model. As recommended by many researchers, multiple fit criteria were utilized to assess model fit (Bentler, 1986; Bentler and Bonett, 1980; Hair et al., 1995; Joreskog and Sorbom, 1999). Based on several fit indices ($\chi^2$/degrees of freedom = 1.37; goodness of fit [GFI] = 0.91; adjusted goodness of fit [AGFI] = 0.88; Bentler and Bonett’s normed fit index [NFI] = 0.93; Bentler and Bonett non-normed fit index [NNFI] = 0.97; Bentler comparative fit index [CFI] = 0.98; root mean square residual [RMSR] = 0.05; and root mean square error of approximation [RMSEA] = 0.04), we can confidently conclude that the constructs exhibit unidimensionality.

The summary statistics and the correlation matrix for the constructs used in the model are presented in Table 2. The model parameters were estimated using the method of maximum likelihood (Joreskog and Sorbom, 1999). The summed item scores for these variables were used as measures of their latent constructs.

### 3.5. Results of analysis

The hypothesized structural equations model (Fig. 1) was tested using LISREL (Joreskog and Sorbom, 1999), with variance–co-variance matrices for the latent variables and residuals used as input. The model fit indices ($\chi^2$/degrees of freedom = 1.26; goodness of fit [GFI] = 0.91; adjusted goodness of fit [AGFI] = 0.88; Bentler and Bonett’s normed fit index [NFI] = 0.93; Bentler and Bonett non-normed fit index [NNFI] = 0.97; Bentler comparative fit index [CFI] = 0.98; root mean square residual [RMSR] = 0.05; and root mean square error of approximation [RMSEA] = 0.04), we can confidently conclude that the constructs exhibit unidimensionality.

Table 1
Assessment of reliability and construct validity (parameter estimates, error terms, t-values, and $R^2$)

<table>
<thead>
<tr>
<th>Factors and items</th>
<th>Estimated loading</th>
<th>Standardized loading</th>
<th>Error term</th>
<th>t-values</th>
<th>$R^2$</th>
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<td>Strategic purchasing</td>
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All t-values are significant at $P < 0.01$ level.
fit \[ \text{GFI} = 0.99; \] adjusted goodness of fit \[ \text{AGFI} = 0.96; \] Bentler and Bonett’s normed fit index \[ \text{NFI} = 0.97; \] Bentler and Bonett non-normed fit index \[ \text{NNFI} = 0.98; \] Bentler comparative fit index \[ \text{CFI} = 0.99; \] root mean square residual \[ \text{RMSR} = 0.04; \] and root mean square error of approximation \[ \text{RMSEA} = 0.03) \] suggest that the hypothesized model fits the data very well. The hypothesized relationships were tested using their associated \( t \)-statistics. The \( t \)-values >1.65, 1.98, and 2.576 were considered to be significant at the 0.10, 0.05, and 0.01 levels, respectively (Hair et al., 1995).

Fig. 2 presents the results of the seven hypothesized relationships (H1–H7) among the study variables. Six of the hypothesized relationships were found to be significant, of which four were significant at the 0.01 level; one was significant at the 0.05 level, and another was significant at the 0.10 level. One of the major advantages of using S.E.M. is the ready accessibility to indirect and total effects, in addition to the direct causal effects between the exogenous and endogenous variables. As can be seen in Table 3, all the indirect and total effects were statistically significant at or above the 90% confidence level.

The hypotheses (H1–H3) linking strategic purchasing to the three components of supply management (communication, limited number of suppliers, and

<table>
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<tr>
<th>Factors</th>
<th>Mean</th>
<th>S.D.</th>
<th>SP</th>
<th>LS</th>
<th>LO</th>
<th>CO</th>
<th>CR</th>
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<td>Strategic purchasing (SP)</td>
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<tr>
<td>Limited number of suppliers (LS)</td>
<td>5.339</td>
<td>1.097</td>
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<td>Long-term orientation (LO)</td>
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<td>0.31</td>
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<tr>
<td>Communication (CO)</td>
<td>5.083</td>
<td>1.067</td>
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<td>Customer responsiveness (CR)</td>
<td>4.876</td>
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<td>0.14</td>
<td>0.13</td>
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**Footnotes:**
- **"** \( t \)-values significant at \( p < 0.01 \) level
- **'** \( t \)-values significant at \( p < 0.05 \) level
- **'** \( t \)-values significant at \( p < 0.10 \) level

Fig. 2. A final causal model of strategic supply management.
long-term orientation) were all statistically significant and in the expected directions. Specifically, the paths linking strategic purchasing to: (1) limited number of suppliers ($b = 0.20; P < 0.01$); (2) long-term orientation ($b = 0.21; P < 0.01$); and (3) communication ($b = 0.16; P < 0.01$) were all statistically significant. Further, significant parameter estimates were found for indirect effects of strategic purchasing on: (a) long-term orientation through limited number of suppliers ($b = 0.06; P < 0.01$); and (b) communication through limited number of suppliers ($b = 0.19; P < 0.01$). Thus, in addition to having “direct effects”, strategic purchasing also has indirect effects on long-term orientation and communication through limited number of suppliers. In addition, although we did not state formal hypotheses, we found significant positive relationships between: (a) limited number of suppliers and long-term orientation ($b = 0.29; P < 0.01$); (b) limited number of suppliers and communication ($b = 0.27; P < 0.01$); and (c) long-term orientation and communication ($b = 0.50; P < 0.01$) in the LISREL model. These findings suggest that these supply management capabilities might produce “synergistic” interaction effects, which could magnify their overall effects on the outcome variables.

The second set of hypotheses (H4–H6) postulates positive links between communication, limited number of suppliers and long-term relationship orientation, and customer responsiveness. The parameter estimate for the path between long-term orientation and customer responsiveness was significant and in the expected direction ($b = 0.18; P < 0.05$); the parameter estimate for the path linking communication to customer responsiveness was marginally significant ($b = 0.12; P < 0.10$); but the parameter estimate for the path between limited number of supplier and customer responsiveness was not statistically significant, even though it was in the expected direction. Finally, the path linking customer responsiveness to financial performance (H7) was found to be significant and positive ($b = 0.34; P < 0.01$).

4. Discussion and implications

This study contributes to and extends a growing research stream documenting the strategic role of purchasing in supply-chain management. Specifically,
we investigated the relationships among strategic purchasing, supply management capabilities (communication, limited number of suppliers, and long-term relationship orientation), customer responsiveness, and buyer firm financial performance. Strategy researchers have documented how dynamic capabilities can generate sustainable competitive advantage insofar as they are valuable, rare, and hard to copy (Barney, 1991; Wernerfelt, 1984). The findings of significant positive relationship between strategic purchasing and these supply management capabilities constitute a significant contribution to, and extension of, the literature in strategic purchasing and supply management.

In the operations management literature, researchers have documented how strategic purchasing: (a) fosters beneficial links between manufacturing and corporate strategy and firm performance; (b) facilitates beneficial interdependencies among enterprise functions, such as product development and marketing; and (c) engenders a good “fit” with the firm’s strategic requirements and external environmental contingencies (Carr and Pearson, 1999; Stock et al., 2000). The findings of this study demonstrate that strategic purchasing can play a vital role in engendering long-term, strategic and cooperative relationships, fostering close working relationships with a limited number of dedicated suppliers, and maintaining open, two-way communication and knowledge exchange between the focal firm and its suppliers. These results provide compelling empirical support for incorporating insights from the “dynamic capabilities” perspective (Eisenhardt and Martin, 2000; Teece et al., 1997) into the literature in strategic purchasing and supply management.

Furthermore, operations management researchers have recently documented activities and practices related to purchasing and supply management and their impact on firm performance (Carr and Pearson, 1999; Zsidisin and Ellram, 2001). For example, Narasimhan and Das (2001) empirically found significant and positive relationships among purchasing practices, purchasing integration, and manufacturing firms’ performance. However, because discrete activities or practices of purchasing and supply management are observable and transferable from one organizational context to another, they may be easily duplicated, and thus, may not generate a sustainable competitive advantage for any one firm (Barney, 1991). Instead, it is the unique combination of these practices or activities and their configuration with the firm’s strategic goals as well as other firm-specific resources and capabilities that may inhibit imitation of the firm’s competitive advantage (Lado et al., 1992). Thus, to the extent that strategic purchasing also fosters unique combination of these practices and engenders complex interactions among supply management capabilities, it may play a stronger and more robust role in generating and sustaining strategic advantage for the firm. The findings of significant indirect and total effects among strategic purchasing, long-term orientation, communication and limited number of suppliers suggest that strategic purchasing might play a synergistic role in fostering value-enhancing relationships and knowledge exchange between the firm and its suppliers (Dyer and Nobeoka, 2000; Takeishi, 2001).

The criticality of strategic purchasing is demonstrated by the fact that it is responsible for more than half of the production costs for a firm’s products (Carr and Pearson, 1999; Zsidisin and Ellram, 2001). This observation has often been used to underscore the importance of transaction cost economizing through efficient contracting and design of governance mechanisms to curb opportunism in buyer–supplier relationships (Cox, 1996; Heide and John, 1990; Williamson, 1991). Although concerns for transaction cost minimization in such relationships are important, this study shows that strategic purchasing can also play an additional role in transaction value creation through fostering supply management capabilities (Zajac and Olsen, 1993). This is accomplished through developing long-term orientation, maintaining open lines of communication between the firm and its suppliers, and building close relationships with fewer suppliers. As Hill (1990) has noted, in the long run, the invisible hand of the market favors firms whose behavioral repertoires support trust and cooperation rather than competition and opportunism. Such behavioral repertoires enable manufacturers and suppliers to work together on designs that will improve the quality of parts and lower assembly costs, and increase the likelihood of future cooperation to reduce costs and/or enhance product quality through relationship-specific investments (Hill, 1990). Thus, a focus on building collaborative relationships with suppliers, rather than
just minimizing transaction costs, can provide a more robust basis for assessing the contribution of strategic purchasing to the firm’s bottom line.

On the other hand, our hypothesized relationship between limited number of suppliers and customer responsiveness (H4) was not supported. One explanation for this non-finding might be that the measures used for tapping this construct might not be sufficient, as indicated by the relatively low Cronbach’s alpha for this construct. Although this might be the case, it does not explain the significant positive relationship between strategic purchasing and limited number of suppliers (H2). A more plausible explanation might be that merely having a limited number of suppliers to work with may not be sufficient to create value and increase customer responsiveness. Instead, it is the ability to develop high-quality buyer-supplier relationships through open communication and close, frequent exchanges of information, which is critical to building and sustaining strategic advantage (Lorenzoni and Lipparini, 1999; Takeishi, 2001). Having a smaller number of suppliers to work with is necessary, but by itself not sufficient to contribute to enhanced customer responsiveness. Thus, firms that merely emphasize reducing their supplier base without a corresponding change in strategic behaviors (and mindset) conducive to fostering supply management capabilities, such as promoting open, two-way communication, and building trust and cooperation and adopting a long-term orientation with suppliers may fail to achieve durable competitive advantages.

Indeed, a reduction of supplier base could be associated with broken trust between the firm and its suppliers, which could undermine the firm’s reputation as a trustworthy exchange partner and hurt its future prospects for collaborating with supply-chain partners. For example, when General Motors reduced its supplier base in keeping with the emerging trend in the auto industry in the early 1990s, it forced its suppliers to implement cost and price reductions. In turn, suppliers reacted by cutting costs, compromising quality and delaying production schedules, which, in turn, led to poor customer responsiveness and greater loss in market share for the company (Moffett and Youngdahl, 1999). Thus, firms that have reduced their supplier base also need to increase their investments in relationship-specific assets, facilitate communication and knowledge exchange, and deepen trust and cooperation with their suppliers, in order to achieve durable collaborative advantage.

5. Conclusion and directions for future research

In an era of “alliance capitalism” (Gerlach, 1992), the ability to form and manage supply-chain relationships is a critical organizational asset that can generate durable strategic advantage. Based on this premise, this paper investigates the extent to which strategic purchasing fosters supply management capabilities, consisting of long-term orientation, limited number of suppliers, and communication. In turn, these capabilities contribute to enhancing customer responsiveness and financial performance for the buying firm. From a practical perspective, this study shows that not only can purchasing contribute directly to the firm’s bottom line; it is also a vitally important strategic partner in fostering supply management capabilities, which may generate durable strategic advantage. In addition to reinforcing previous research documenting the importance of managing buyer-supplier relationships for mutual benefits, this investigation also documents how supply management contributes to enhanced operational (i.e. customer responsiveness) and financial performance for the buying firm. Customer responsiveness may be considered an “output-based competency” that indicates how well value is delivered to customers, which in turn enhances a firm’s image, reputation, and legitimacy to its customers, suppliers and other stakeholders (Lado et al., 1992).

At this point, it is important to acknowledge important limitations of our study that might provide opportunities for future research. During the instrument purification process, eight items were deleted in order to improve the reliability and validity of their underlying theoretical constructs. Thus, the construct of limited number of suppliers was reduced to only two items because three out of five indicators were deleted in this process. Though the factor exhibits acceptable reliability for the purposes at hand, future research should refine it and consider adding new indicators that more fully tap the construct. It should also be noted that supply management is a multidimensional construct; thus, future research may need to include other factors, such as supplier selection, supplier certification, and supplier integration. Also,
the role of trust in engendering long-term, cooperative relationships and in simultaneously enhancing transaction value and reducing transaction costs needs to be more explicitly measured and assessed as an integral component of the supply management construct.

Another limitation of this research concerns the sample population. Having drawn from a list of ISM members, we can only claim that the results of this research are generalizable to firms in that population. Although this study sample covered a wide range of firms in the ISM database in terms of industry membership and demographic variables, future research may need to include a broader population of firms, including service firms, as well as other domestic and international companies in order to expand the scope of generalizability of the results. Finally, this study focused on the buyer–supplier dyad as the unit of analysis, and assumed the buying firm’s perspective. As it “takes two to tango”, there is a need to more fully examine the nature of the exchange relationship from the supplier’s perspective in order to establish whether or not the relationship is reciprocal and mutually beneficial. Also, because dyadic, buyer–supplier relationships are embedded in larger supply-chain networks, future research needs to adopt the “strategic network” (Gulati et al., 2000) as a unit of analysis and investigate the extent to which such networks are competency enhancing or competency destroying for member firms. Despite these limitations, this study paves the way for researchers and managers to more fully capitalize on the potential of strategic purchasing to foster supply management capabilities.

**Acknowledgement**

The authors would like to thank the Institute for Supply Management (ISM) for its administrative and financial support of this research.

**Appendix A.**

<table>
<thead>
<tr>
<th>Strategic purchasing ($\alpha = 0.82$)</th>
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</thead>
<tbody>
<tr>
<td>SP1 Purchasing is included in the firm’s strategic planning process</td>
<td></td>
</tr>
<tr>
<td>SP2 The purchasing function has a good knowledge of the firm’s strategic goals</td>
<td></td>
</tr>
<tr>
<td>SP3 Purchasing performance is measured in terms of its contributions to the firm’s success</td>
<td></td>
</tr>
<tr>
<td>SP4 Purchasing professionals’ development focuses on elements of the competitive strategy</td>
<td></td>
</tr>
<tr>
<td>SP5 Purchasing department plays an integrative role in the purchasing function</td>
<td></td>
</tr>
<tr>
<td>SP6 Purchasing’s focus is on longer term issues that involve risk and uncertainty</td>
<td></td>
</tr>
<tr>
<td>SP7 The purchasing function has a formally written long-range plan</td>
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<table>
<thead>
<tr>
<th>Limited number of suppliers ($\alpha = 0.65$)</th>
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</thead>
<tbody>
<tr>
<td>LS1 We rely on a small number of high quality suppliers</td>
<td></td>
</tr>
<tr>
<td>LS2 We maintain close relationship with a limited pool of suppliers</td>
<td></td>
</tr>
<tr>
<td>LS3 We get multiple price quotes from suppliers before ordering</td>
<td></td>
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<tr>
<td>LS4 We drop suppliers for price reasons</td>
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<tr>
<td>LS5 We use hedging contracts in selecting our suppliers</td>
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<th>Long-term orientation ($\alpha = 0.85$)</th>
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<td>LO1 We expect our relationship with key suppliers to last a long time</td>
<td></td>
</tr>
<tr>
<td>LO2 We work with key suppliers to improve their quality in the long run</td>
<td></td>
</tr>
<tr>
<td>LO3 The suppliers see our relationship as a long-term alliance</td>
<td></td>
</tr>
<tr>
<td>LO4 We view our suppliers as an extension of our company</td>
<td></td>
</tr>
<tr>
<td>LO5 We give a fair profit share to key suppliers</td>
<td></td>
</tr>
<tr>
<td>LO6 The relationship we have with key suppliers is essentially evergreen</td>
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<table>
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<th>Communication ($\alpha = 0.86$)</th>
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<tr>
<td>CO1 We share sensitive information (financial, production, design, research, and/or competition)</td>
<td></td>
</tr>
<tr>
<td>CO2 Suppliers are provided with any information that might help them</td>
<td></td>
</tr>
<tr>
<td>CO3 Exchange of information takes place frequently, informally and/or in a timely manner</td>
<td></td>
</tr>
<tr>
<td>CO4 We keep each other informed about events or changes that may affect the other party</td>
<td></td>
</tr>
<tr>
<td>CO5 We have frequent face-to-face planning/communication</td>
<td></td>
</tr>
<tr>
<td>CO6 We exchange performance feedback</td>
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### Appendix A (Continued)

<table>
<thead>
<tr>
<th>Buyer performance</th>
<th>Financial performance (α = 0.97)</th>
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<tr>
<td>Customer Responsiveness (α = 0.82)</td>
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<tr>
<td>CR1</td>
<td>Rapid confirmation of customer orders</td>
</tr>
<tr>
<td>CR2</td>
<td>Rapid handling of customer complaints</td>
</tr>
<tr>
<td>Financial performance (α = 0.97)</td>
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<td>FP1</td>
<td>Return on investment</td>
</tr>
<tr>
<td>FP2</td>
<td>Profits as a percent of sales</td>
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<tr>
<td>FP3</td>
<td>Firm’s net income before tax</td>
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*a* Deleted after exploratory factor analysis.

*b* Deleted after confirmatory factor analysis.

### References


