PURCHASING MANAGERS' PERCEIVED BIAS IN SUPPLIER-SELECTED REFERRALS

MAHIMA HADA
City University of New York

RAJDEEP GREWAL AND GARY L. LILIEN
Pennsylvania State University

In evaluating suppliers in complex purchasing decisions involving customized solutions, purchasing managers must judge the capabilities suppliers have to provide the solutions, a judgment that often includes considerable uncertainty. To reduce this uncertainty, suppliers often ask their existing customers to be reference customers and give a referral to purchasing managers — that is, suppliers and purchasing managers consider a *supplier-selected referral* as a source of information. However, in contrast to other information sources, reference customers are selected by suppliers, not by purchasing managers; thus, purchasing managers may perceive a bias in the supplier-selected referral. We study the antecedents of purchasing managers' perceived bias with a mixed-design experiment with purchasing managers as respondents. We find that the greater the experience of purchasing managers, the less the bias in the referral they perceive. We also find that reference customers can reduce purchasing managers' perceived bias in the supplier-selected referral by giving a referral that has some negative information in an otherwise positive referral.

INTRODUCTION

Buyer–supplier relationships range from arms-length transactions to strategic sourcing relationships where purchasing firms seek to build long-term relationships with suppliers (McHugh, Humphreys & McLvor, 2003). To evaluate suppliers for long-term relationships, purchasing managers evaluate not only the product but also suppliers' capabilities in implementing, customizing and providing support in the future, especially when the solutions are high in complexity and require customization [e.g., enterprise resource planning (ERP) solutions; Lonsdale, 2001]. Wallenburg (2009) finds that as solutions grow in complexity, buying firms are more likely to seek suppliers' proactive involvement in fulfilling their requirements from suppliers' solution. Therefore, when evaluating suppliers for complex solutions, purchasing managers seek information about suppliers' abilities to provide solutions that extend beyond product attributes.

One of the ways purchasing managers evaluate suppliers is by asking suppliers for a reference customer. As Mochal (2010) advises purchasing managers: "One of the activities that should be on your evaluation checklist is talking to companies that currently use the product. The purpose of checking references is to get past the marketing and sales hype and hear some real opinions." To provide a reference, suppliers select an existing or previous customer as a reference customer and ask the reference customer to give a referral for suppliers to purchasing firms — a *supplier-selected referral*.

Supplier-selected referrals differ from the other information sources purchasing managers use to evaluate suppliers in one key aspect: most information sources (such as consultants) are selected by buying firms, that is, by purchasing managers, whereas reference customers are selected by suppliers. Furthermore, purchasing managers know that suppliers have selected the reference customer, and thus, *likely perceive a bias in the referral in favor of suppliers*. Suppliers in the industry also

recognize that purchasing managers perceive a bias in supplier-selected referrals and try to reduce this perceived bias. For example, SAS Inc. encourages "endorsement-free referencing" by asking its reference customers to talk to buying firms' purchasing managers about everything concerning SAS "*the good, the bad, and the ugly*" (Lee, 2008). Thus, by asking a reference customer to include some negative information in the positive referral, SAS hopes to reduce purchasing managers' perceived bias in the supplier-selected referral.

Given the importance suppliers attach to purchasing managers' perceived bias in a supplier-selected referral, we focus on the following research question: *What factors influence purchasing managers' perceived bias in a supplier-selected referral?*

To answer this question, we first engage in exploratory research involving interviews with purchasing managers to understand the role of purchasing managers' perceived bias in supplier-selected referrals. We build our conceptual framework based both on the results of those interviews and on extant research on communication in referrals (e.g., Gilly, Graham, Wolfinbarger & Yale, 1998) and on managers' information processing biases (e.g., Mantel, Tatikonda & Liao, 2006). We then test our conceptual framework with an experimental design, using purchasing managers who are members of the Institute of Supply Management as respondents.

We find that purchasing managers perceive the least bias in a referral when the reference customer gives a two-sided referral (i.e., a referral with some negative information about the supplier along with mainly positive information) as compared to a one-sided referral. We also find that the reference customer's credibility does not have a significant effect on purchasing managers' perceived bias in the referral. This finding indicates purchasing managers perceive a bias *because suppliers have selected the reference customer*, and not because of the credibility of a specific reference customer (as long as the reference customer has some credibility). We also find that purchasing managers' experience in purchasing and their familiarity with suppliers affect their perceived bias in a supplier-selected referral.

We organize the article as follows. First, we provide a brief review of the literature covering the multiple streams of research we rely on here. Second, we present our conceptual framework, followed by our hypotheses. Third, we present the details of our experimental study and results. Finally, we discuss the implications of our investigation into purchasing managers' perceived bias in supplier-selected referrals.

LITERATURE REVIEW

Purchasing managers are often skeptical about the claims that suppliers make about their solutions and the benefit their firms will actually achieve from those solutions (Anderson & Wynstra, 2010). This skepticism arises because as products and services become more integrated, it becomes more difficult to evaluate them prepurchase (Windahl, Andersson, Christian & Nehler, 2004). Purchasing managers' uncertainty further increases when solutions become more complex because complex solutions require buying firms to make specific human and physical investments that cannot be easily transferred to other solutions (Lonsdale, 2001). Thus, purchasing managers evaluating complex systems (like ERP solutions) perceive considerable uncertainty concerning suppliers' capabilities (Kaufmann, Buhrmann & Carter, 2012; Verville & Halingten, 2003a,b).

Reference Customers as an Uncertainty Reduction Mechanism

To reduce the uncertainty associated with the purchase, one of the information sources that purchasing managers rely on is the existing customers of potential suppliers, or reference customers. Research has shown that the use of supplier-selected referrals as sources of information provides benefits to both suppliers and buying firms: Buying firms rely on referrals to reduce uncertainty and risk about suppliers' capabilities (e.g., DeKinder & Kohli, 2008); similarly, Anderson and Wynstra (2010) find reference customers significantly increase buying firms' purchase intentions. For suppliers, reference customers can function as sales and promotional tools, as well as provide internal educational opportunities to adopt best practices (e.g., Jalkala & Salminen, 2010). Researchers in this domain have also looked at the use of reference customers as quality signals to buying firms (e.g., Salminen & Möller, 2006), as, for example, when suppliers display the names of their prominent customers on their websites.

Thus, research on the role of reference customers has established the usefulness of reference customers to suppliers (e.g., Jalkala & Salminen, 2010) and to buying firms (e.g., Anderson & Wynstra, 2010). Here, we focus on the nature of the message a reference customer transmits to purchasing managers in buying firms, and the role of purchasing managers' perceived bias in the referral. Given our focus on the reference customer's referral to the purchasing manager, we build on two related streams of research — communication and information processing.

Communication: The Role of the Source and the Message

The first stream of research considers the role of the source (i.e., the reference customer) and the message (i.e., the referral) on influencing the receivers (i.e., purchasing managers; e.g., Wilson & Sherrell, 1993). Research on referrals between consumers shows that

the reference customer's characteristics — such as credibility and perceived expertise — affect the referral's influence on consumers' purchase decisions (e.g., Gilly et al., 1998). Anderson and Wynstra (2010) also suggest that the efficacy of using a reference customer depends on the credibility of the reference customer. Research on referral message has largely focused on the valence of the referral message and has found that negative information has a stronger influence on consumers' purchase decisions than positive information (Fiske & Taylor, 1991).

Information Processing

A second stream of research focuses on how managers process the information they receive (e.g., Carter, Kaufmann & Michel, 2007). Purchasing managers make purchasing decisions in conditions of incomplete information and uncertainty. To do so, managers often rely on their prior beliefs (e.g., about a particular supplier) and then integrate additional information (e.g., through a supplier-selected referral) to form their current beliefs leading to a purchase or consideration decision (e.g., Boulding et al., 1994). When processing information, managers, like all humans, are subject to distortions in how they view and integrate new information into their current thinking (e.g., Bolton, 2003). Research in behavioral operations management has also acknowledged that managers' decisions are not always objective and are influenced by how they use information and by their own characteristics, such as their experience (e.g., Mantel et al., 2006).

CONCEPTUAL FRAMEWORK

While we build on the two research streams above, to date they have neither been integrated nor applied to supplier-selected referrals. Furthermore, supplier-selected referrals have not been studied from a purchasing manager's perspective (e.g., Jalkala & Salminen, 2010). Therefore, we first conducted 13 exploratory interviews to enrich our construct selection and to develop our conceptual framework (See Appendix A for a description of these interviews.) We integrated these interviews with the relevant literature to build our conceptual framework (Figure 1).

Perceived Bias in Supplier-Selected Referrals

I *know* it [the reference customer] will be their best customer. (Purchasing Manager)

If I could find someone in my network who has worked with the supplier, I will always listen to that person more [than the supplier's reference customer]. (Vice president, supplier evaluation)

FIGURE 1
Conceptual Framework and Hypotheses
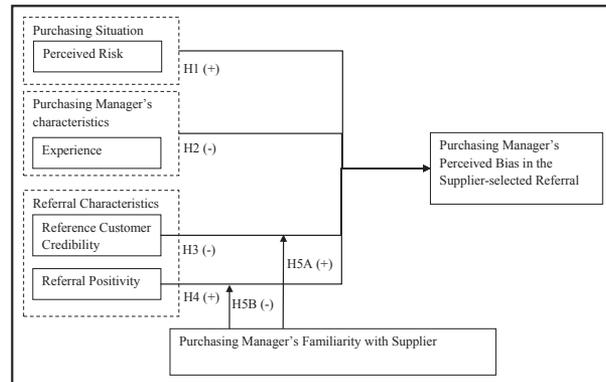
In our interviews, managers responsible for evaluating suppliers mentioned that supplier-selected referrals are commonly used in the industry and are an important information source. However, they also mentioned that they are aware of suppliers' bias toward selecting a highly satisfied customer as the reference customer and that they take this knowledge into account when they evaluate the supplier-selected referral (as the quote above indicates). Relatedly, a purchasing manager expressed his view that he would likely trust a source he personally knew more than the reference customer. Thus, our interviews indicate that purchasing managers tend to discount the information from supplier-selected referrals because they expect suppliers to select a highly satisfied customer as a reference customer. We capture this phenomenon in our analysis using the construct of the purchasing manager's *perceived bias in the referral*, which we define as the purchasing manager's perception that the information presented in the referral is positively slanted toward the supplier.

Research on the influence of marketing communications on consumers has also indicated that consumers perceive a bias in some communications. For example, consumers are often skeptical about firms' advertising messages as they perceive that information as biased toward the firm (e.g., Pechmann, 1992). Research has also shown that the trustworthiness of word-of-mouth is often determined by the receivers' perception of whether the word-of-mouth messages are unbiased (Brown, Broderick & Lee, 2007). Similarly, Anderson and Wynstra (2010) argue that purchasing managers are skeptical about the claims that suppliers make. Thus, our interviews and extant research indicate that purchasing managers are likely to perceive bias in the supplier-selected referral.

Next, we present the drivers of purchasing managers' perceived bias in supplier-selected referrals.

Drivers of Perceived Bias in Supplier-Selected Referrals

Risk in purchasing decision.

Our products are risky… These [physicians] are not going to even agree to try the product unless I can tell them — Yes, So-and-so highly reputed doctor has tried it, you should talk to him. (Marketing Manager, medical devices supplier)

I just tell my prospects the names of other firms I am supplying to. They never need to talk to them. (Marketing Manager, standard chemicals).

The above quotes from two industries (medical devices and standard chemicals) with quite different levels of risk underscore the role that inherent purchase risk plays in determining the extent to which purchasing managers scrutinize the supplier-selected referral.

Research in purchasing has also recognized purchasing managers' perceived risk in a situation as a significant element in purchasing decisions (Rajagopal & Bernard, 1993). As purchasing managers rarely have complete information about all aspects of the suppliers' solution, all purchasing decisions have an associated degree of risk (e.g., Essig & Arnold, 2001).

A common risk-handling strategy managers use is to access additional information (e.g., Puto, Patton & King, 1985). In industrial purchasing, Moriarty and Spekman (1984) find that personal, noncommercial information sources (such as referrals) help reduce managers' perceived risk. Relatedly, Jalkala and Salminen (2010) find suppliers consider reference customers to be highly important when the buying firm faces technological risk. Thus, we incorporate the effect of purchasing managers' perceived risk on their perceived bias in supplier-selected referrals.

Purchasing managers' experience.

In the past, we have made [purchasing] decisions based on demonstrations. Not anymore. Now, we always ask for references, and talk to them to get the complete picture. (Vice President, software solutions evaluator)

In my so many years of purchasing … [I know that] reference customers are not going to *lie*. (Director, information technology purchasing).

Our interviews indicate that managers with higher experience and involvement in purchasing decisions tend to be more likely to regard supplier-selected referrals as reliable sources of information than those with less experience. Thus, purchasing managers' previous experience appears to influence their perceived bias in supplier-selected referrals.

Research in behavioral operations management has also found that managers make decisions based on more than objective criteria and that their previous experiences influence their choice behavior (Bendoly, Donohue & Schultz, 2006). Veres (2009) argues that purchasing managers with less experience, who feel they are not highly competent, overestimate the extent of risk in purchasing decisions. In contrast, Kaufmann *et al.* (2012) findings suggest that knowledgeable purchasing managers may fall prey to overconfidence based on their previous experience. This stream of literature suggests that purchasing managers' relevant, previous experience likely influences their decision-making processes. We define *purchasing managers' experience* as their prior experience in similar purchasing decisions and study the effect of purchasing managers' experience on their perceived bias in supplier-selected referrals.

Reference customer credibility.

The first thing I look for is credibility. If he/she [the reference customer] is not credible, then the referral has no value. (Product Manager, information technology supplier)

I will think that if a firm like [X] is giving this information, it will be fine and fair. If it was some random firm that I didn't know, well then I would scrutinize it further. (Vice President, consulting firm purchasing)

The importance purchasing managers and suppliers place on reference customers' credibility was evident in our interviews. Research on influence of information defines credibility of an information source as individuals' perceived trustworthiness and expertise (Sternthal, Dholakia & Leavitt, 1978). In industrial purchasing situations, purchasing managers may not personally know the person giving the supplier-selected referral and likely judge the person's credibility through the credibility of the firm the person represents. Research on sales has also found that a highly favorable firm reputation enhances the image and credibility of the individuals who represent the firm (e.g., Weitz, 1981). Therefore, we use the reference customer's corporate reputation to represent the reference customer's credibility (Lafferty & Goldsmith, 1999) and define *reference customer credibility* as the extent to which the reference customer is perceived as possessing expertise relevant to the topic and can be trusted to give an objective opinion of the subject. As research on word-of-mouth has shown that the more credible the source, the greater the influence on the receiver's purchasing decision (e.g., Gilly et al., 1998; Murray, 1991), we study the effect of reference customer credibility on purchasing managers' perceived bias in a supplier-selected referral.

Referral positivity.

I would always select my best customer as my reference customer. They derive value, and are extremely satisfied with our work, and that's what I

want to show [to the purchasing manager]. (Executive Director, education services supplier)

Our [potential] clients are happiest when the reference customer has told them about the challenges they have faced with us, with our solution. Vanilla [referral] does not work. (CEO, software solution supplier)

If the reference customer says only positive things about the supplier, definitely, I would be suspicious. (Vice President, information technology buyer)

As suppliers have selected the reference customer in supplier-selected referrals, the valence of the referral is likely always positive (Hada, Grewal & Lilien, 2010); however, the referral message can vary in its *referral positivity*. We define referral positivity as the amount of positive information in the referral. A supplier-selected referral could be a one-sided referral (has only positive information about the supplier) or a two-sided referral (has some negative information about the supplier in an overall positive referral).

In our interviews, there were varying beliefs expressed about the influence of referral positivity. As the amount of negative information in a message has been shown to have an effect on individuals' decision-making in the research on consumer decision-making (e.g., Fiske & Taylor, 1991) and managerial decision-making in operations (Thomas, Fugate & Koukova, 2011), we study the influence of referral positivity on purchasing managers' perceived bias in a supplier-selected referral.

Purchasing managers' familiarity with supplier.
If it is a new product or solution I am looking at, I would ask even our existing suppliers for a reference. (Purchasing Manager, information technology)

Almost always, we prefer to work with a supplier we have experience with. Even when the supplier's reference said something negative — and this has happened — we typically take that into account in our agreement with the supplier… For example, if service was the problem, I would make sure we have a SLA [service level agreement] with them. (Sourcing Director, retail industry)

Purchasing managers rely most heavily on reference customers when they have no previous experience with suppliers and are thus highly uncertain about suppliers' capabilities (such as for startups; Ruokolainen & Igel, 2004). However, our interviews revealed that purchasing managers consider supplier-selected referrals important even for suppliers with whom they have had previous experience.

When purchasing managers have had previous experience with suppliers, that past experience leads the managers to perceive they can predict those suppliers' future capabilities (e.g., Doney & Cannon, 1997; Liu, Li, Tao & Wang, 2008). Thus, purchasing managers will likely have a more positive predisposition toward suppliers that they are more familiar with (assuming their past experience was generally positive). This predisposition can lead purchasing managers to exhibit confirmation bias (that is, purchasing managers seek confirmatory information for their prior beliefs — Carter et al., 2007) in how they perceive the information in a supplier-selected referral. Thus, we study the contingent effect of purchasing managers' familiarity with suppliers on the influence of reference customer credibility and referral positivity on perceived bias in a supplier-selected referral (Figure 1).

HYPOTHESES

Purchasing Managers' Perceived Risk

A key factor that influences how managers make decisions is the amount of risk they perceive in purchase decisions (Thomas et al., 2011). Extant research on behavioral decision-making concerning managers shows that purchasing managers' perceived risk influences how they process information in the supplier-selected referral to make their purchase decisions (Mantel et al., 2006). As decision-makers' perceived risk increases, the attention the decision-makers devote to the decisions also increases (Robinson, Faris & Wind, 1967). Thus, as purchase decisions become riskier, purchasing managers are likely to spend more time and resources on processing the information to make the decisions. As supplier-selected referrals provide critical information for purchasing managers, we expect that as purchasing managers' perceived risk increases, the attention managers give to the supplier-selected referral should also increase. Increased attention toward a supplier-selected referral likely increases purchasing managers' scrutiny of the information in the referral, which should increase purchasing managers' sensitivity to the fact suppliers are likely to select a satisfied customer as their reference customer. Thus, purchasing managers likely perceive that the information they receive from supplier-selected referrals is biased in favor of suppliers. Therefore:

H1: The higher the purchasing manager's perceived risk in the purchase decision, the higher will be the purchasing manager's perceived bias in the supplier-selected referral.

Purchasing Managers' Experience

Purchasing managers' experience has been shown to be an important antecedent of the extent to which purchasing managers gather information and evaluate alternatives in the decision-making process (Giunipero & Reham Aly, 2004; Robinson et al., 1967). The

amount of experience purchasing managers have affects their perception and processing of the information (Hitt & Tyler, 1991) and likely influences their perceived bias in the supplier-selected referral.

Senior managements' depth of experience in a specific domain is a major element of their expertise (e.g., Johnson, Klassen, Leenders & Awaysheh, 2007), where expertise influences how they process and integrate information (e.g., Gilly et al., 1998). According to the theory of information processing in communication, experts tend to conduct relatively little external search for information, as they feel confident in their ability to make decisions, but highly value the information they do seek. Thus, more experienced purchasing managers likely value the information in supplier-selected referrals, as soliciting a reference customer is an integral part of the purchasing process. In contrast, less experienced purchasing managers have less confidence in their knowledge and ability to make the right decisions (Brucks, 1985). And the lower the purchasing managers' experience, the higher the risk they perceive in the purchase decision (Veres, 2009). This combination of reduced confidence and higher perceived risk likely leads purchasing managers to more scrutiny and perhaps more skepticism of the information they receive in the supplier-selected referral. Thus, the lower the purchasing managers' experience, the more they should scrutinize the information given in the supplier-selected referral and the higher their perceived bias in the supplier-selected referral (as we discussed earlier). Therefore, we suggest:

H2: The higher the purchasing manager's experience, the lower will be the purchasing manager's perceived bias in the supplier-selected referral.

Reference Customer Credibility

Reference customer credibility captures the reputation of the reference customer and the extent to which the reference customer is considered trustworthy and is an expert in a specific domain (Lafferty & Goldsmith, 1999). Communication theory states that the credibility of the information source (the reference customer) influences how the information receivers (purchasing managers) perceive the information. The higher the credibility of the source, the more likely the receiver is to believe information from that source (e.g., Gürhan-Canli & Batra, 2004; Jacoby & Hoyer, 1981), which implies that the receiver perceives less bias in the information. In complex industrial purchasing situations, research suggests the information provided by a trusted party is used more by buying firms than the information provided by a nontrusted party (Alejandro, Kowalkowski, da Silva Freire Ritter, Marchetti & Prado, 2011); this higher usage of information indicates that buying firms perceive less bias

in the information given by a trusted party. Thus, as purchasing managers are more likely to believe a credible reference customer's information and are more likely to use that information in the purchase decision, they likely perceive less bias in a supplier-selected referral. Therefore, we hypothesize:

H3: The higher the reference customer's credibility, the lower will be the purchasing manager's perceived bias in a supplier-selected referral.

Referral Positivity

A supplier-selected referral can vary in its referral positivity and could be a one-sided referral (with only positive information about the supplier) or a two-sided referral (with some negative information about the supplier in an overall positive referral). Although research on information processing has found that people pay more attention to negative information than to positive information (Fiske & Taylor, 1991), the effect of referral positivity on perceived bias is likely influenced by purchasing managers' expectation of a one-sided referral in supplier-selected referrals.

Consider a trial where the jury hears testimony from witnesses that are selected by the prosecution side or the defendant side, and thus, the jury perceives a bias in the witness' testimony depending on which side has selected the witness. Pennington and Hastie (1992) find that if the jury perceives that the witness' testimony addresses "all angles" (in favor and against the side), the jury's perceived bias in the witness' testimony is less. Additionally, Pechmann (1992) finds that two-sided advertising messages (advertising that includes some negative information) increase consumers' perceptions of the honesty of the source as consumers are expecting only positive information in advertising. Research in communication and information processing highlights how individuals process information based on their *expectations* of the content of the information. Therefore, as purchasing managers likely expect a supplier-selected referral to be one-sided in favor of suppliers, this expectation influences their perception of the information in the referral. A two-sided referral likely surprises purchasing managers and leads them to believe that the reference customer is giving an overall honest evaluation. Thus, purchasing managers should perceive less bias when reference customers provide a two-sided referral than a one-sided referral. Therefore, we suggest:

H4: The higher the referral positivity, the higher will be the purchasing manager's perceived bias in the supplier-selected referral.

Familiarity with Supplier

Purchasing managers likely have favorable predisposition toward familiar suppliers (e.g., Hirakubo &

Kublin, 1998), as familiarity with suppliers leads purchasing managers to believe that they can predict suppliers' capabilities and performance (Liu et al., 2008). Because of this predisposition, purchasing managers likely exhibit confirmation bias when they process the information from a supplier-selected referral (see Carter et al., 2007 for an overview of managerial behavioral biases applied to supply chain management); hence, we expect that purchasing managers' perception of the referrals will depend on purchasing managers' familiarity with the suppliers.

Confirmation bias indicates that managers tend to believe the sources that support their predisposition are more reliable than the sources that do not (e.g., Carter et al., 2007; Hogarth, 1987). As discussed earlier, purchasing managers should be positively predisposed toward familiar suppliers. Furthermore, as suppliers select the reference customer in supplier-selected referrals, purchasing managers will likely consider a reference customer selected by familiar suppliers to be more reliable than a reference customer selected by unfamiliar suppliers. Thus, purchasing managers perceive reference customers giving information about familiar suppliers to be more credible and trustworthy than reference customers giving information about unfamiliar suppliers. The higher the perceived credibility of the reference customer, the more likely that purchasing managers believe that the information given in the referral is accurate, reducing their perceived bias in the supplier-selected referral. Therefore, we hypothesize:

H5a: The higher the purchasing manager's familiarity with suppliers, the stronger will be the negative effect of reference customer credibility on the purchasing manager's perceived bias in a supplier-selected referral.

Confirmation bias indicates that managers focus on information that confirms their existing predispositions and ignore disconfirming information (e.g., Carter et al., 2007; Ruokolainen & Igel, 2004; Schwenk, 1988). Thus, confirmation bias should lead purchasing managers to focus on positive information and ignore negative information, for familiar suppliers. As a one-sided referral gives only positive information about the supplier, purchasing managers should focus on the information in a one-sided referral for familiar suppliers and discount a two-sided referral, as it contains some negative disconfirming information. Thus, confirmation bias should lead managers to consider a one-sided referral as less slanted toward familiar suppliers than toward unfamiliar suppliers. Therefore, we hypothesize:

H5b: The higher the purchasing manager's familiarity with suppliers, the weaker will be the positive effect of referral positivity on the purchasing manager's perceived bias in a supplier-selected referral.

METHODOLOGY

We sought a method that would use real managers, would not be influenced by prior respondent behavior and would allow us to isolate focal constructs and manipulate referral positivity. Hence, we chose an experimental task as compared to the more commonly used retrospective survey approach often deployed in this domain (Eckerd & Bendoly, 2011; Siemsen, 2011).

We deploy a scenario-based role playing experiment, which is appropriate for testing complex purchasing decisions (Rungtusanatham, Wallin & Eckerd, 2011). In a scenario-based role playing experiment, varying versions of vignettes are used to convey scripted information about the specific factors that are of the researcher's interest. Thus, a key aspect of the scenario-based role playing experiment is the design and validation of the vignette. Below we present the three stages of constructing the vignette — predesign, design and validation (Rungtusanatham et al., 2011).

Constructing the Vignette

Predesign stage. In the predesign stage, we focus on the empirical context in which the respondents will be "embedded." We needed an empirical context that fulfilled the following criteria: (a) purchasing managers typically use reference customers to evaluate the solution; (b) the solution has been present in the industry for some time so that respondents are aware of the product/solution; and (c) both small and large firms are likely to purchase the solution so that we can meet the required sample size. We chose an ERP solution as the purchasing context as it satisfies the criteria specified above. Furthermore, reference customers are considered as one of the key factors to look at when selecting an ERP supplier firm (IQMS, 2007). We chose the purchase of an ERP solution by the networking, telecommunication and electronics industry as our research context.

Design stage. The design stage consists of two steps: (a) designing the experiment (number of factors and their levels) and (b) designing the multiple versions of the vignettes to represent the experimental design.

For the experimental design, as our conceptual framework includes interaction effects, we chose a mixed-design experiment. In the mixed-design experiment, the purchasing manager's familiarity with the supplier firm (low versus high) is manipulated as the between-subjects design. Each respondent is exposed to one of the two supplier familiarity conditions. The within-subjects factors (referral positivity, reference

customer credibility) are manipulated in a format similar to a conjoint task. Reference customer credibility was varied at two levels (low and high), and referral positivity was varied at three levels (a two-sided referral; two levels for one-sided referral — one-sided good and one-sided excellent; see Table 1 for manipulation details). As we manipulate our within-subjects factors as a conjoint task, the two factors are orthogonal. Further, our approach allows efficient data collection because each respondent received three profiles (one combination of reference customer credibility and referral positivity is a profile).

To create the vignettes, we sought to adapt previously used descriptions in the literature. For familiarity with the supplier, we adapted Brown's (1995) manipulation for a supplier that has previously worked with/not worked with the buyer. For reference customer credibility, we adapted Gürhan-Canli and Batra's (2004) vignette for corporate reputation. For referral positivity, we could not find any existing manipulations for our context; however, we did take into account research on two-sided advertising (e.g., Eisend, 2006). See Table 1 for each description used.

Postdesign stage (validation). To ensure that each vignette was clear, realistic, complete and effective (Rungtusanatham et al., 2011), we asked three purchasing managers we had earlier interviewed to assess the vignettes for us. We incorporated their suggestions into the final vignettes.

Final stimuli. Each vignette consisted of three sections. The first section established the purchase scenario. We specified that the respondent is a purchasing manager whose firm is evaluating ERP solutions and that the next step in the purchasing process is to create a shortlist of suppliers for an in-depth evaluation. To aid this decision, the purchasing manager has asked suppliers to provide a key reference customer to interview. In the second section, the respondent viewed the manipulated scenarios and provided responses regarding her/his perceived bias in the referral. In the third section, the respondent reported perceived risk and experience.

Measures

Measurement of risk and experience. As purchasing managers' perceived risk and experience are manager-specific, we use self-reported measures. We measured these constructs using continuous measures.

In any purchasing decision, there is risk associated with the purchase, such that the chosen supplier and its solution will not perform as expected. In addition, in B2B markets, the supplier's lack of performance would also likely cost the buying firm time and money, particularly for solutions such as ERP solutions (Verville & Halingten, 2003a,b). Therefore, we asked purchasing managers the extent to which choosing the wrong ERP vendor could cost their firm time and money. To assess purchasing managers' experience, we asked the managers about their past involvement in purchasing decisions like ERP solutions.

Dependent variable measurement. We developed a three-item measure for purchasing managers' perceived bias in the supplier-selected referral. We asked them whether they perceived that the reference customer (a) gave information that excessively favored the supplier, (b) withheld negative information about the supplier and (c) gave only positive information about the supplier.

Data Collection

Pretest for manipulation checks. We first conducted a pilot study that focused only on manipulation checks for our stimuli. We chose students in MBA and executive MBA programs in a large U.S. business school as our sample, as they have industry experience, to assess the survey. We administered the survey to 150 students and received 43 responses. Of the 43 responses, 22 responses were complete and we conducted manipulation checks on these 22 responses.

Respondents' rating of the "purchasing manager's experience with supplier" was significantly higher in the high condition as compared to the low condition (mean$_{high}$ = 5.85, mean$_{low}$ = 1.76, t_{20} = 7.6, $p < 0.01$). We assessed the manipulations for low versus high reference customer's reputation on three dimensions — (a) expertise (mean$_{high}$ = 5.71, mean$_{low}$ = 4.28, t_{20} = 3.2, $p < 0.01$); (b) trustworthiness (mean$_{high}$ = 5.76, mean$_{low}$ = 4.57, t_{20} = 4.67, $p < 0.01$); and (c) overall reputation (mean$_{high}$ = 6.42, mean$_{low}$ = 4.61, t_{20} = 7.38, $p < 0.01$). Thus, we concluded that our manipulations to portray reference customers as high reputation or medium reputation were successful.

We assessed the manipulations for referral positivity on two dimensions — reference customer's satisfaction with the supplier (1 dissatisfied, 4 satisfied, 7 extremely satisfied) and the opinion of the reference customer (1 bad, 4 some good, some bad, 7 good) that assessed the valence of the information. We found that respondents did not perceive a significant difference between a good referral and an excellent referral on valence (mean$_{good}$ = 5.5, mean$_{excellent}$ = 5.7, t_{19} = 1.31, $p > 0.10$) and perceived a significant difference on reference customer's satisfaction (mean$_{good}$ = 5.0, mean$_{excellent}$ = 6.1, t_{19} = 3.19, $p < 0.01$). Respondents perceived a significant difference between a good referral and a two-sided referral on valence (mean$_{good}$ = 4.95, mean$_{two-sided}$ = 5.42, t_{20} = 1.69, $p < 0.10$) and did not perceive a significant difference on the reference customer's satisfaction (mean$_{good}$ = 5.0, mean$_{excellent}$ = 5.0, t_{20} = .0, $p > 0.10$). Respondents perceived a significant difference between a two-sided referral and an

TABLE 1

Empirical Study: Manipulations for Experiment

Construct	Manipulation
Familiarity with supplier	Low: *Supplier* has never worked with *Buying firm* before High: *Supplier* has earlier worked with *Buying firm,* but for a simple accounting solution that is not related to the ERP solution
Reference customer credibility	Low (High): *Reference Customer* was established in 1965. Most of its products have been in the market for the last 3 years. Last year *Reference Customer* held 4 percent (30 percent) of the market share in the networking devices market In its March 2009 edition, the trade journal *Communications News* presented the results of its latest "Industry Reputation Quotient" survey. In its survey, *Communications News* asks 2,000 executives and directors from peer firms and customer firms to rank companies in an industry on multiple aspects of company reputations. The *Communications News* survey gave *Reference Customer* a "Satisfactory Reputation" (Excellent Reputation) rating, with 65 percent (95 percent) of the 400 firms in the industry rated below *Reference Customer*
Referral positivity	Two-sided: We are more than satisfied with *Supplier's* ERP solution. Their solution fit our needs, but ERP solutions are complex, and customizing the application is time-consuming and difficult. We had to have a dedicated in-house team for customization, which increased our expense. But, we have a successful implementation. We achieved our 7 percent cost reduction target, thanks to *Supplier's* ERP solution One-sided, Good: We are satisfied with *Supplier's* ERP system. Their solution fit our requirements and was delivered at our launch date. The integration process was without any major issues and was done within the expected cost. Overall, we have reduced our operation management costs by around 5 percent, and it is because of *Supplier's* ERP system One-sided, Excellent: Our experience with *Supplier* has been nothing less than excellent. Their solution met our needs and was within budget. We have reduced our operation management costs by around 8 percent and even experienced some surprise benefits such as improved employee satisfaction. We feel the credit goes to *Supplier's* ERP solution
ERP, enterprise resource planning.	

excellent referral on valence ($mean_{two\text{-}sided} = 4.95$, $mean_{excellent} = 5.75$, $t_{19} = 2.23$, $p < 0.05$) and perceived a significant difference on the reference customer's satisfaction ($mean_{two\text{-}sided} = 5.0$, $mean_{excellent} = 6.05$, $t_{19} = 3.67$, $p < 0.05$). Therefore, we concluded our manipulations for referral positivity are successful.

Final Data Collection

Respondents. Our respondents were a randomly selected sample of 480 purchasing managers and vice presidents from firms in the networking, telecommu- nication and electronics industry (SIC Code 360) who were members of the Institute for Supply Manage- ment. As our purpose is to study how purchasing managers view information in supplier-selected refer- rals, considering the theoretical scope of our article (Stevens, 2011), purchasing managers comprise the appropriate sample. We randomized the order in which the profiles appeared in the vignette and ran- domized the assignment of profiles to respondents, as recommended by Bachrach and Bendoly (2011).

We mailed the stimuli to the respondents, including a cover letter on university letterhead, providing details

of the study and asking respondents to attach their business cards if they desired a copy of the report. We also included a self-addressed, prepaid envelope and a $1 bill to increase the response rate. In the survey packet, we included a redirecting form that respondents could return to us if they believed someone else in the firm was better suited to participate. When we received these forms, we forwarded the survey to the identified alternate key respondents. After 3 weeks, we mailed reminder letters, which included the stimuli and the prepaid envelope. We received 65 responses, two redirection forms and five purchasing managers responded citing concerns about responding to the research. We also received 11 returns due to address problems. Thus, we achieve an effective response rate of 13.8 percent. As we had three evaluations per manager, but not all managers answered all three profiles, our sample was 165 responses. To increase our sample size, we conducted a second wave of 350 purchasing managers in the electronics industry who are members of ISM. We sent these respondents four evaluations per stimulus. We received 33 responses and nine returns because of address problems (a response rate of 9.75 percent). Thus, our final sample consisted of 98 managers, with a total of 295 evaluations.

Estimation

Model. Our dependent variable is purchasing managers' perceived bias in the supplier-selected referral (Bias). As one purchasing manager gives multiple responses, we must account for unobserved heterogeneity within the purchasing managers. Therefore, we include a manager-level intercept in our model (γ_{0j}), where j denotes purchasing managers and i denotes the response from the purchasing manager. Therefore, we have:

$$\text{Bias}_{ij} = \gamma_{0j} + \boldsymbol{\beta} \mathbf{X}'_{ij} + \boldsymbol{\lambda} \mathbf{Z}'_{ij} + \varepsilon_{ij} \qquad (1)$$

where γ_{0j} is the manager-level intercept; $\boldsymbol{\beta}$ is the vector for the effect of our explanatory variables, denoted by vector $\mathbf{X}$; $\boldsymbol{\lambda}$ is the vector for the effect of our control variables (order of evaluations in the stimuli and data collection wave), denoted by vector $\mathbf{Z}$; and, ε_{ij} denotes the error.

Results. We do not find support for H1: the effect of purchasing managers' perceived risk in the purchasing situation does not significantly affect their perceived bias in the supplier-selected referral.

We find support for H2: as the purchasing managers' experiences increase, their perceived bias in the supplier-selected referral decreases ($\beta = -0.11$, $p < 0.10$; Table 2).

We do not find support for H3: reference customer credibility does not have an effect on purchasing managers' perceived bias in the referral (Table 2).

We find support for H4: referral positivity increases purchasing managers' perceived bias in the supplier-selected referral. As expected, we find that a two-sided

TABLE 2

Study Results

	Perceived Bias	Standard Error	Hypotheses
Intercept	4.21**	0.85	
Purchasing Situation			
Perceived Risk	0.21*	0.11	H1 (Not Supported)
Purchasing Manager's Characteristics			
Experience	−0.11**	0.06	H2 (Supported)
Purchasing Manager's Familiarity with Supplier			
No Familiarity (vs. Familiarity)	0.20	0.24	
Supplier-selected Referral Characteristics			
Reference Customer Credibility	0.03	0.15	H3 (Not Supported)
Two-sided Referral (vs. Excellent)	−0.81**	0.18	H4 (Supported)
Good Referral (vs. Excellent)	−0.24	0.19	
Reference Customer Credibility × No Familiarity	0.02	0.21	H5A (Not Supported)
Two-sided Referral × No Familiarity	−0.58**	0.26	H5B (Supported)
Good Referral × No Familiarity	−0.26	0.26	
Control Variable			
Order	0.02	0.16	
Wave (Wave 2 of Data Collection)	−0.0.05	0.17	

*$p < 0.1$; **$p < 0.05$.

referral, compared to an excellent referral, reduces purchasing managers' perceived bias ($\beta = -0.77$, $p < 0.05$); also, a good referral, compared to an excellent referral, does not significantly affect the purchasing manager's perceived bias (Table 2). These results provide support for our hypothesis that if reference customers give only positive information in the referral, purchasing managers perceive a bias in favor of the supplier in the referral. We plot the means of two-sided, one-sided good and one-sided excellent referrals in Figure 2.

We find that purchasing managers' familiarity with the supplier does not have a statistically significant effect on perceived bias in the supplier-selected referral. We also do not find support for H5a — the interaction of purchasing managers' familiarity with the supplier and reference customer credibility is not statistically significant. However, given our finding that reference customer credibility does not significantly

FIGURE 2
Effect of Referral Positivity on Purchasing Managers' Perceived Bias in Supplier-Selected Referrals
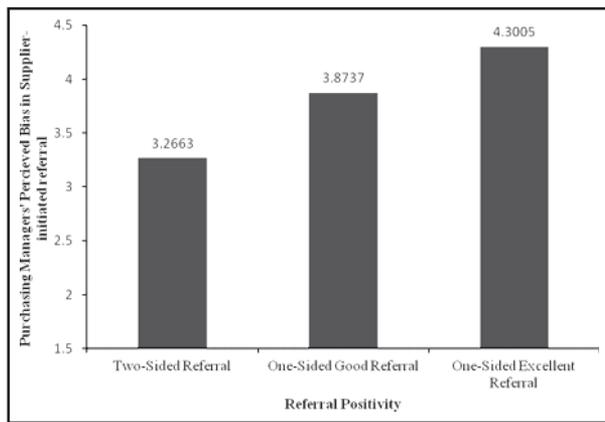

FIGURE 3
Effect of Referral Positivity on Purchasing Managers' Perceived Bias in Supplier-Selected Referrals Contingent on Purchasing Managers' Familiarity with Supplier

affect purchasing managers' perceived bias in the referral, this nonsignificant interaction is not a surprising result. We find support for H5b; the positive effect of referral positivity on purchasing managers' perceived bias in the referral reduces as purchasing managers' familiarity with the supplier increases ($\beta = -0.58$, $p < 0.05$; Figure 3).

DISCUSSION AND CONCLUSION

We focus on a central source of information that purchasing managers often access to evaluate suppliers — the reference customer. As the reference customer is selected by suppliers, and not purchasing managers, the likely bias in the referral in favor of suppliers becomes a key concern for purchasing managers, and thus, for suppliers as well. Thus, we analyze perceived bias in supplier-selected referrals and its antecedents.

Our findings contribute to research in the use of customer references in purchasing decisions (e.g., Jalkala & Salminen, 2010; Salminen & Möller, 2006). Extant literature has largely looked at only the positive aspects of a supplier-selected referral; our work shows buying firms likely perceive bias in a supplier-selected referral. We also find a reference customer can reduce this bias by giving a two-sided referral, that is, by giving some negative information in an overall positive referral. Furthermore, we integrate the literature on how individuals view and process information (Carter et al., 2007) with the stream of literature on the usage of reference customers. Our findings on how purchasing managers' perceived risk and experience influence their bias in the supplier-selected referral provide avenues for future research to study supplier-selected referrals at the transaction level, and not just at the strategic level.

Surprisingly, we find reference customer credibility does not significantly affect purchasing managers' perceived bias in the supplier-selected referral. Extant research in marketing has found consumers are more likely to believe information when it comes from a source with a high reputation as compared to a low reputation (e.g., Gürhan-Canli & Batra, 2004; Jacoby & Hoyer, 1981). One possible reason for our (non) result could be that we manipulated reference customer credibility as medium and high, and not low and high (as it is unlikely that a supplier would select a reference customer with a negative reputation). However, another reason could be that purchasing managers' perceived bias does not depend on reference customer credibility; rather, perceived bias in the referral may depend on whether the reference customer is self-selected or supplier-selected. While research on the use of "informal sources" (akin to referrals) in organizational purchasing has focused on sources selected by the purchasing firm (typically, personal sources; e.g., Bunn & Clopton, 1993), research on media communication provides
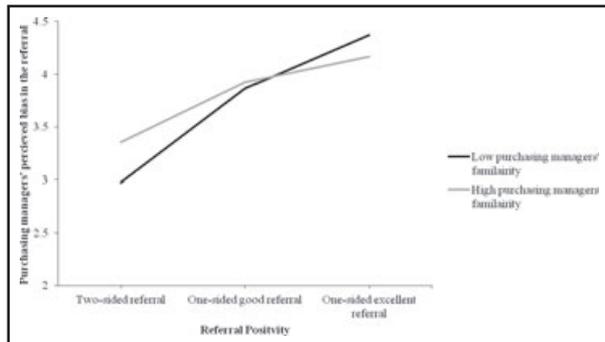
some support for our reasoning. For example, Gunther and Schmitt (2006) find respondents perceive the same information as biased or nonbiased depending on the source of the information: if the source of information is a person, then individuals perceive the information to be objective; if the source of the same information is a newspaper, then individuals consider the information to be biased. Thus, the perception of bias is likely linked to individuals' attitudes toward the media as a source of information (e.g., Vallone, Ross & Lepper, 1985) and not from specific characteristics of the source. Hence, purchasing managers' may perceive bias in the referral because the supplier selects the reference customer, irrespective of the selected reference customers' reputation (assuming that reputation is not negative).

We also contribute to the field of behavioral operations management (e.g., Bendoly et al., 2006). First, we show that, on average, purchasing managers with more experience likely believe reference customers do not overtly bias the information in favor of suppliers. This finding links to research that shows that knowledgeable managers often fall prey to overconfidence based on their prior experience (Kaufmann, Carter & Buhrmann, 2010). It is possible this overconfidence leads purchasing managers to insufficiently scrutinize the information in a supplier-selected referral, thus reducing their perceived bias in the referral. Second, our findings show evidence of purchasing managers' confirmatory bias. We find purchasing managers' expected predisposition toward a familiar supplier leads them to perceive less bias in an excellent one-sided supplier-selected referral than they would toward an unfamiliar supplier. Thus, we show purchasing managers view information in the supplier-selected referral message differently based on their familiarity with suppliers, an issue that should be accounted for in future research on behavioral supply chain management.

Our research also contributes to the purchasing literature related to integrated solutions (a combination of products and services), and specifically ERP solutions. Recent research has recognized integrated solutions are a key offering by suppliers in business-to-business markets (Windahl et al., 2004). When offering integrated solutions, the relationships suppliers are trying to build are continuous ones, where suppliers become a part of buying firms' operations. Wu and Wang (2006) also show that a buying firm's satisfaction with ERP systems is significantly influenced by the extent to which the supplier meets the requirements of buying firms. Thus, as suppliers of integrated solutions build continuous relationships with their existing customers, satisfying these customers is not always straightforward, which affects suppliers' ability to use their existing customers as reference customers. Our research shows a reference customer who gives a two-sided referral still provides an advantage, as the referral reduces purchasing managers' perceived bias.

Managerial Implications

An account manager from one of my larger vendors — I met with this AM quarterly — told me that one of the new metrics for their quota was going to be references, and asked if I'd be willing to help them out. [Patty Morrison, former CIO at Motorola (Morrison, 2009)]

Patty Morrison's experience with one of Motorola's suppliers highlights how salespeople must build supplier-selected referrals as part of their performance appraisal. Our research provides some specific guidance. First, salespeople must recognize that purchasing managers perceive a bias in supplier-selected referrals.[1] Second, two-sided referrals from reference customers reduce purchasing managers' perceived bias in the referrals, and reference customers should be encouraged to provide such referrals. Third, as long as salespeople select a credible reference customer, selecting a highly reputed reference customer does not affect purchasing managers' perceived bias in the referral.

We also find purchasing managers perceive less bias in a one-sided excellent referral for suppliers they have worked with previously than for suppliers they have never worked with; however, this effect is reversed for two-sided referrals (Figure 3). Thus, salespeople need to be aware of the implications of referral positivity on purchasing managers' perceived bias in the referral depending on whether they have a previous relationship with the buying firm or not.

Limitations and Future Research

Future research should use retrospective survey-based methods to assess additional factors that influence how purchasing managers view supplier-selected referrals. Our use of an experiment as the empirical method limits the number of explanatory factors that can be tested.

A related limitation of our conceptual model is that we do not assess the effect of purchasing managers' perceived bias in a supplier-selected referral on purchasing managers' consideration or choice decision. Future research should consider the consequences of purchasing managers' perceived bias in a supplier-selected referral, and how it affects the efficacy of the referral. Furthermore, future research on the benefits and use of reference customers should take into account the likely negative effect of purchasing managers' perceived bias in a supplier-selected referral.

---

[1]Note that we do not measure the effect of perceived bias on the final decision of purchasing managers, and thus cannot claim that perceived bias in the referral will reduce the efficacy of the supplier-selected referral.

Conclusion

For suppliers, a supplier-selected referral presents an opportunity to influence buying firms in favor of the suppliers. For purchasing managers, a supplier-selected referral presents an important information source that can give them the customer's perspective of suppliers' solutions. However, the supplier-selected referral needs to be considered with caution, as purchasing managers perceive bias in a supplier-selected referral. Our study provides implications, for both suppliers and purchasing managers, to maximize the benefit from supplier-selected referrals.

REFERENCES

Alejandro, T. B., Kowalkowski, C., da Silva Freire Ritter, J. G., Marchetti, R. Z., & Prado, P. H. (2011). Information search in complex industrial buying: Empirical evidence from Brazil. *Industrial Marketing Management*, 40 (1), 17–27.

Anderson, J. C., & Wynstra, F. (2010). Purchasing higher-value, higher-price offerings in business markets. *Journal of Business-to-Business Marketing*, 17 (1), 29–61.

Bachrach, D. G., & Bendoly, E. (2011). Rigor in behavioral experiments: A basic primer for supply chain management researchers. *Journal of Supply Chain Management*, 47 (3), 5–8.

Bendoly, E., Donohue, K., & Schultz, K. L. (2006). Behavior in operations management: Assessing recent findings and revisiting old assumptions. *Journal of Operations Management*, 24 (6), 737–752.

Bolton, L. E. (2003). Stickier priors: The effects of nonanalytic versus analytic thinking in new product forecasting. *Journal of Marketing Research*, 40 (1), 65–79.

Boulding, W., Moore, M. C., Staelin, R., Corfman, K. P., Dickson, P. R., Fitzsimons, G., Gupta, S., Lehmann, D. R., Mitchell, D. J., & Urbany, J. E. (1994). Understanding managers' strategic decision-making process. *Marketing Letters*, 5 (4), 413–426.

Brown, S. P. (1995). The moderating effects of insupplier/outsupplier status on organizational buyer attitudes. *Journal of the Academy of Marketing Science*, 23 (3), 170–181.

Brown, J., Broderick, A. J., & Lee, N. (2007). Word of mouth communication within online communities: Conceptualizing the online social network. *Journal of Interactive Marketing*, 21 (3), 2–20.

Brucks, M. (1985). The effects of product class knowledge on information search behavior. *Journal of Consumer Research*, 12 (1), 1–16.

Bunn, M. D., & Clopton, S. W. (1993). Patterns of information source use across industrial purchase situations. *Decision Sciences*, 24 (2), 457–478.

Carter, C. R., Kaufmann, L., & Michel, A. (2007). Behavioral supply management: A taxonomy of judgment and decision-making biases. *International Journal of Physical Distribution & Logistics Management*, 37 (8), 631–669.

DeKinder, J. S., & Kohli, A. K. (2008). Flow signals: How patterns over time affect the acceptance of start-up firms. *Journal of Marketing*, 72 (5), 84–97.

Doney, P. M., & Cannon, J. P. (1997). An examination of the nature of trust in buyer-seller relationships. *Journal of Marketing*, 61 (2), 35–51.

Eckerd, S., & Bendoly, E. (2011). Introduction to the discussion forum on using experiments in supply chain management research. *Journal of Supply Chain Management*, 47 (3), 3–4.

Eisend, M. (2006). Two-sided advertising: A meta-analysis. *International Journal of Research in Marketing*, 23 (2), 187–198.

Essig, M., & Arnold, U. (2001). Electronic procurement in supply chain management: An information economics-based analysis of electronic markets. *Journal of Supply Chain Management*, 37 (4), 43–49.

Fiske, S. T., & Taylor, S. E. (1991). *Social cognition*. New York: McGraw-Hill.

Gilly, M. C., Graham, J. L., Wolfinbarger, M. F., & Yale, L. J. (1998). A dyadic study of interpersonal information search. *Journal of the Academy of Marketing Science*, 26 (2), 83–100.

Giunipero, L. C., & Reham Aly, E. (2004). Securing the upstream supply chain: A risk management approach. *International Journal of Physical Distribution & Logistics Management*, 34 (9), 698–713.

Gunther, A. C., & Schmitt, K. (2006). Mapping boundaries of the hostile media effect. *Journal of Communication*, 54 (1), 55–70.

Gürhan-Canli, Z., & Batra, R. (2004). When corporate image affects product evaluations: The moderating role of perceived risk. *Journal of Marketing Research*, 41 (2), 197–205.

Hada, M., Grewal, R., & Lilien, G. L. (2010). Referral equity and referral management: The supplier firm's perspective. *Review of Marketing Research*, 7, 93–144.

Hirakubo, N., & Kublin, M. (1998). The relative importance of supplier selection criteria: The case of electronic components procurement in Japan. *Journal of Supply Chain Management*, 34 (2), 19–24.

Hitt, M. A., & Tyler, B. B. (1991). Strategic decision models: Integrating different perspectives. *Strategic Management Journal*, 12 (5), 327–351.

Hogarth, R. M. (1987). *Judgement and choice: The psychology of decision*. Chichester: John Wiley & Sons.

IQMS. (2007). How successful ERP selections are made. Retrieved from www.iqms.com/products/brochures/Successful_ERP_Selection.pdf.

Jacoby, J., & Hoyer, W. D. (1981). *What if opinion leaders didn't know more? A question of nomological validity*. Ann Arbor, MI: Association for Consumer Research.

Jalkala, A., & Salminen, R. T. (2010). Practices and functions of customer reference marketing — leveraging customer references as marketing assets. *Industrial Marketing Management*, 39 (6), 975–985.

Johnson, P. F., Klassen, R. D., Leenders, M. R., & Awaysheh, A. (2007). Selection of planned supply initiatives: The role of senior management expertise. *International Journal of Operations & Production Management*, 27 (12), 1280–1302.

Kaufmann, L., Buhrmann, C., & Carter, C. R. (2012). The impact of individual debiasing efforts on financial decision effectiveness in the supplier selection process. *International Journal of Physical Distribution & Logistics Management*, 42 (5), 411–433.

Kaufmann, L., Carter, C. R., & Buhrmann, C. (2010). Debiasing the supplier selection decision: A taxonomy and conceptualization. *International Journal of Physical Distribution & Logistics Management*, 40 (10), 792–821.

Lafferty, B. A., & Goldsmith, R. E. (1999). Corporate credibility's role in consumers' attitudes and purchase intentions when a high versus a low credibility endorser is used in the ad. *Journal of Business Research*, 44 (2), 109–116.

Lee, B. (2008). S.A.S.' Elizabeth stack on the art of building a robust government reference program. Retrieved from http://blog.customerreferenceforum.com/crf/2008/11/the-art-of-building-a-robust-government-reference-program.html.

Liu, Y., Li, Y., Tao, L., & Wang, Y. (2008). Relationship stability, trust and relational risk in marketing channels: Evidence from china. *Industrial Marketing Management*, 37 (4), 432–446.

Lonsdale, C. (2001). Locked-ln to supplier dominance: On the dangers of asset specificity for the outsourcing decision. *Journal of Supply Chain Management*, 37 (2), 22–27.

Mantel, S. P., Tatikonda, M. V., & Liao, Y. (2006). A behavioral study of supply manager decision-making: Factors influencing make versus buy evaluation. *Journal of Operations Management*, 24 (6), 822–838.

McHugh, M., Humphreys, P., & McLvor, R. (2003). Buyer supplier relationships and organizational health. *Journal of Supply Chain Management*, 39 (2), 15–25.

Mochal, T. (2010). Be wary of vendor references, but use them to your advantage. In Mochal, Tom, editor, Ithuta JV.

Moriarty, R. T., & Spekman, R. E. (1984). An empirical investigation of the information sources used during the industrial buying process. *Journal of Marketing Research*, 21 (2), 137–147.

Murray, K. B. (1991). A test of services marketing theory: Consumer information acquisition activities. *Journal of Marketing*, 55 (1), 10–25.

Pechmann, C. (1992). Predicting when two-sided ads will be more effective than one-sided ads: The role of correlational and correspondent inferences. *Journal of Marketing Research*, 29 (4), 441–453.

Pennington, N., & Hastie, R. (1992). Explaining the evidence: Tests of the story model for juror decision making. *Journal of Personality and Social Psychology*, 62 (2), 189–206.

Puto, C. P., Patton, W. E., & King, R. H. (1985). Risk handling strategies in industrial vendor selection decisions. *Journal of Marketing*, 49 (1), 89–98.

Rajagopal, S., & Bernard, K. N. (1993). Strategic procurement and competitive advantage. *Journal of Supply Chain Management*, 29 (4), 12–20.

Robinson, P. J., Faris, C. W., & Wind, Y. (1967). *Industrial buying and creative marketing*. Boston: Allyn and Bacon.

Rungtusanatham, M., Wallin, C., & Eckerd, S. (2011). The vignette in a scenario-based role-playing experiment. *Journal of Supply Chain Management*, 47 (3), 9–16.

Ruokolainen, J., & Igel, B. (2004). The factors of making the first successful customer reference to leverage the business of start-up software company — multiple case study in Thai software industry. *Technovation*, 24 (9), 673–681.

Salminen, R. T., & Möller, K. (2006). Role of references in business marketing — towards a normative theory of referencing. *Journal of Business-to-Business Marketing*, 13 (1), 1–51.

Schwenk, C. R. (1988). The cognitive perspective on strategic decision making. *Journal of Management Studies*, 25 (1), 41–55.

Siemsen, E. (2011). The usefulness of behavioral laboratory experiments in supply chain management research. *Journal of Supply Chain Management*, 47 (3), 17–18.

Sternthal, B., Dholakia, R., & Leavitt, C. (1978). The persuasive effect of source credibility: Tests of cognitive response. *Journal of Consumer Research*, 4 (4), 252–260.

Stevens, C. K. (2011). Questions to consider when selecting student samples. *Journal of Supply Chain Management*, 47 (3), 19–21.

Thomas, R. W., Fugate, B. S., & Koukova, N. T. (2011). Coping with time pressure and knowledge sharing in buyer–supplier relationships. *Journal of Supply Chain Management*, 47 (3), 22–42.

Vallone, R. P., Ross, L., & Lepper, M. R. (1985). The hostile media phenomenon: Biased perception and perceptions of media bias in coverage of the Beirut massacre. *Journal of Personality and Social Psychology*, 49 (3), 577–585.

Veres, Z. (2009). Competence-based risk perception in the project business. *Journal of Business & Industrial Marketing*, 24 (3/4), 237–244.

Verville, J., & Halingten, A. (2003a). Analysis of the decision process for selecting ERP software: The case of Keller manufacturing. *Integrated Manufacturing Systems*, 14 (5), 423–432.

Verville, J., & Halingten, A. (2003b). A six-stage model of the buying process for E.R.P. Software. *Industrial Marketing Management*, 32 (7), 585–594.

Wallenburg, C. M. (2009). Innovation in logistics outsourcing relationships: Proactive improvement by logistics service providers as a driver of customer loyalty. *Journal of Supply Chain Management*, 45 (2), 75.

Weitz, B. A. (1981). Effectiveness in sales interactions: A contingency framework. *Journal of Marketing*, 45 (1), 85–103.

Wilson, E. J., & Sherrell, D. L. (1993). Source effects in communication and persuasion research: A meta-analysis of effect size. *Journal of the Academy of Marketing Science*, 21 (2), 101–112.

Windahl, C., Andersson, P., Christian, B., & Nehler, C. (2004). Manufacturing firms and integrated solutions: Characteristics and implications. *European Journal of Innovation Management*, 7 (3), 218–228.

Wu, J.-H., & Wang, Y.-M. (2006). Measuring ERP success: The ultimate users' view. *International Journal of Operations & Production Management*, 26 (8), 882–903.

Mahima Hada (Ph.D., The Pennsylvania State University) is an assistant professor of marketing in the Zicklin School of Business at Baruch College/City University of New York in New York. Her research focuses on empirically modeling strategic marketing issues, especially in the realm of referrals, and in business-to-business markets. Dr. Hada also holds an undergraduate degree in engineering and a master's degree in business, and she worked for Dassault Systèmes for several years before entering academe.

Rajdeep Grewal (Ph.D., University of Cincinnati) is the Irving & Irene Bard Professor of Marketing and the Associate Research Director of the Institute for the Study of Business Markets in the Smeal College of Business at The Pennsylvania State University in University Park, Pennsylvania. His current research projects involve the econometric examination and empirical modeling of issues related to strategic marketing, business markets and inter-firm relationships. Dr. Grewal's work has been published in many prestigious outlets, including the *Journal of Marketing*, the *Journal of Marketing Research*, *Marketing Science*, *Management Science*, *Quantitative Marketing and Economics* and the *Strategic Management Journal*. Dr. Grewal currently serves as an Associate Editor for the *Journal of Marketing Research* and an Area Editor for the *Journal of Marketing*.

Gary L. Lilien (DES, Columbia University) is a Distinguished Research Professor of Management Science and the Founder/Research Director of the Institute for the Study of Business Markets in the Smeal Business School at The Pennsylvania State University in University Park, Pennsylvania. His research interests focus on marketing decision support, marketing engineering, market segmentation, new product modeling and marketing-mix issues for business products, bargaining and negotiations in business markets, modeling the industrial buying process and innovation diffusion modeling. Dr. Lilien is the author or co-author of 14 books and more than 100 articles, primarily in the areas of industrial marketing, new product development, marketing models and bargaining theory. He currently serves on the editorial boards of several publications including the *International Journal of Research in Marketing*, the *Journal of Marketing*, *Interfaces*, *Marketing Science*, the *Journal of Business and Industrial Marketing* and the *Journal of Business to Business Marketing*.

APPENDIX A: QUALITATIVE INTERVIEWS

In supplier-selected referrals, there are two entities: the supplier who selects the reference customer and the purchasing manager who receives the referral; therefore, we interviewed both suppliers and purchasing managers. For the supplier sample, we selected marketing managers and vice presidents who are members of the Institute for the Study of Business Markets (ISBM). As we are interested in a key purchasing phenomenon in business markets, we selected firms in diverse industries. Our interviewees were either the initial contact at the firm or they identified an alternate interviewee in their firm. We interviewed seven marketing managers and vice presidents, and one CEO, at suppliers in the chemical, medical products, education and technology industries.

We selected purchasing managers to interview with a mix of two samples. First, ISBM members directed us to purchasing managers in their firms. Second, MBA graduates of a major business school in the United States helped us establish contact with purchasing managers in their firms. We interviewed five purchasing managers in the technology, retail and consulting industries.

In total, we interviewed 13 managers across nine firms in seven industries. We used a semi-structured interview procedure, enabling us to narrow down to our research questions. We asked our interviewees to focus on the following areas: (a) the role of supplier-selected referrals in the purchasing process; and (b) how the supplier-selected referral influences purchasing managers. The majority of the interviews were tape-recorded. In situations where tape-recording was not possible, the researchers took detailed notes. The interviews lasted for an average of 45 minutes.