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Attribute-Level Satisfaction, Overall Customer Satisfaction, and Performance Outcomes in Business-to-Business Firms

ABSTRACT

Scholars have used the attribute-based model of overall satisfaction extensively in consumer markets. Yet, business-to-business (B2B) firms also strive to improve overall satisfaction and financial performance by improving satisfaction on key attributes. We develop an attribute-based model to link attribute-level satisfaction to overall customer satisfaction and its downstream outcomes, specifically loyalty intentions and financial performance in B2B firms. The key contributions of this research are to identify and validate four key strategic attributes used in B2B markets (i.e., quality, pricing, safety, corporate social responsibility), and to empirically test the attribute-based model of satisfaction. While extant research has primarily focused on negative asymmetry (i.e., losses loom larger than gains) in how the attributes are associated with overall satisfaction, our results also demonstrate complete symmetry and positive asymmetry.. Moreover, our results offer insights into the role of safety and corporate social responsibility, two key attributes in B2B settings. Finally, we show that overall customer satisfaction not only affects behavioral intentions (repurchase intention, recommend intention, and positive word-of-mouth), but also affects short- and long-term financial outcomes (sales revenue, gross margin, Tobin's q), which has implications for resource allocation across key attributes.

Keywords: business-to-business marketing, overall satisfaction, financial performance, positive asymmetry, negative asymmetry, attribute-level satisfaction

Recognizing customers are the ultimate source of cash flow and financial value, business-to-business (B2B) firms continuously invest in measuring overall satisfaction. Bain & Company (2014) concludes "nearly every large B2B company solicits feedback from its customers, often in the form of quarterly or semiannual satisfaction surveys" (p. 1). Despite measuring overall satisfaction, B2B firms often struggle to identify and prioritize attributes that drive overall customer satisfaction. For example, many B2B firms know their customer's overall satisfaction score, but they may not have insights into the drivers of overall satisfaction. For example, should a B2B firm manage satisfaction with product/service quality or pricing? To what extent would attributes such as safety contribute to overall satisfaction? These issues are often not systematically addressed for a B2B firm. Due to this lack of clarity regarding attributes that drive overall satisfaction, firms often find themselves embroiled in a variety of strategic initiatives they believe are helping customers. Customers see it differently—they see a firm that is unfocused, inconsistent, and not satisfying their needs.

To help B2B managers resolve this conundrum, this paper develops an attribute-level model for overall customer satisfaction positing that attribute-level satisfaction can exhibit a positively asymmetric, negatively asymmetric, and a symmetric association with overall customer satisfaction (LaTour and Peat, 1979; Woodruff, Cadotte and Jenkins 1983). Further, the model links overall satisfaction to outcomes such as customer loyalty and financial performance. This research, therefore, provides a framework to enhance future research and managerial implications of customer satisfaction in B2B settings. Although marketing academics have investigated the link between attribute satisfaction and overall customer satisfaction, prior research has been largely limited to the consumer-behavior literature. Much to our surprise, this is one of the first studies in B2B literature to provide a comprehensive view on customer

satisfaction (see Table 1 for a review). This article contributes to several conceptual and empirical gaps in the B2B literature. First, extant work does not offer an integrative and comprehensive perspective on identifying the strategic attributes that drive overall customer satisfaction in B2B contexts. As shown in Table 1, over 90% of the articles in marketing provide a partial view by focusing only on functional attributes such as quality and pricing (Blocker et al. 2011; Chandrashekaran et al. 2007). Second, as summarized in Table 1, extant research in B2B contexts primarily assumes a symmetric relationship among attribute satisfaction and overall customer satisfaction (Eggert and Helm 2003), ignoring an asymmetric effect, such that a unit change in attribute satisfaction has a correspondingly differing impact on overall customer satisfaction than a similar unit change in attribute dissatisfaction. As we will show later, even among the studies that examined asymmetry (Bowman and Narayandas 2004; Mallapragada et al. 2015; Van Doorn and Verhoef 2008), the focus has been on negative asymmetry such that negative attribute satisfaction is more consequential than positive attribute satisfaction. Third, and finally, prior research examines a limited set of outcomes—behavioral intentions but not objective financial outcomes (Lam et al. 2004; Patterson, Johnson, and Spreng 1996). This is surprising given the extensively investigated effect of overall customer satisfaction on firm-financial performance in B2C firms (Fornell et al. 1996). Against this background, there is a research and nomological need to: (1) identify key strategic attributes that drive customer satisfaction in B2B markets; (2) understand the nature of asymmetry that links attribute satisfaction to overall customer satisfaction; and (3) quantify the association of overall customer satisfaction with behavioral and financial performance metrics.

—Insert Figure 1 and Table 1 about here—

The authors develop a conceptual model (Figure 1) that describes the antecedents and

outcomes of overall customer satisfaction in B2B firms. The model is then empirically tested in three studies. The pilot study identifies four strategic attributes for B2B firms using a comprehensive textual analysis of Form 10-Ks of the entire set of publicly-traded B2B firms across all Standard Industrial Classifications (SICs) in the U.S. Study 1 uses survey data from 3,915 business buyers to link attribute satisfaction to overall customer satisfaction while accounting for the potential asymmetry in the association. Study 2 replicates these findings and also links them to financial outcomes, using survey data from 2,380 business buyers whose suppliers are publicly-traded B2B firms in the U.S. While Study 1 uses multi-item scales to enhance measurement reliability, Study 2 enhances external validity by using financial data.

These results enhance existing literature in four ways. First, we identify four strategic attributes that represent key criterion in B2B buying decisions: safety, corporate social responsibility (CSR), quality of product/service, and pricing. Safety and CSR represent attributes associated with secondary benefits, whereas quality and pricing represent economic attributes and offer, primarily, utilitarian benefits (Drumwright 1994). Studies examining customer satisfaction in B2B contexts have mainly focused on price and quality (see Table 1). In contrast, our textual analysis shows that nearly 45% of B2B firms are also focused on safety and CSR. We examine all four attributes jointly in the context of overall satisfaction.

Second, we empirically test the nature of the asymmetry in the linkage between attribute-level satisfaction and overall customer satisfaction. Extant research assumes the linkage to be either symmetric (i.e., negative and positive performance have similar impact; Chandrashekaran et al. 2007) or negatively asymmetric (i.e., negative performance is more consequential than positive performance; Van Doorn and Verhoef 2008). Extending this research, we examine the possibility of a positive asymmetry whereby attribute satisfaction is more consequential for

overall customer satisfaction than attribute dissatisfaction. Our results show that the association of attribute satisfaction with overall customer satisfaction can be symmetric, negatively asymmetric, and positively asymmetric. Specifically, CSR and pricing exhibit a *negative asymmetry*, while quality exhibits a *positive asymmetry*. These results suggest the need to account for the asymmetric nature of satisfaction-maintaining attributes and satisfaction-enhancing attributes when optimizing overall customer satisfaction in B2B firms.

Third, we assess the value of overall customer satisfaction by linking it to multiple dimensions of behavioral intentions and financial performance. As Table 1 shows, prior research has mostly examined behavioral intentions with only one study examining financial outcomes in a B2B context. This study extends the B2B literature by provides an overarching framework to show the associations of overall customer satisfaction with a wide array of behavioral intentions (e.g., repurchase intention, intention to recommend, and positive word-of-mouth) as well as a firm's short- and long-term financial outcomes.

Fourth, our analysis helps shows how attribute-level satisfaction is differentially associated with financial outcomes. Specifically, the results quantify the differential impact of dissatisfaction versus satisfaction on an attribute with respect to overall customer satisfaction, and financial performance. As an example, a one-unit increase in dissatisfaction with pricing is 1.82 times more deleterious for overall customer satisfaction than a one-unit increase in satisfaction with pricing. The results for other attributes show different asymmetries. Managers can use these asymmetries to avoid underinvesting or overinvesting in attribute-level satisfaction within one attribute, and also to allocate resources optimally across attributes.

In the next section, we review extant literature on the link between attribute-level satisfaction and overall customer satisfaction. Subsequently, we report results from a pilot study

using textual analysis of firms' 10-K reports to uncover firms' key stated strategic attributes. We then empirically examine the asymmetric association between satisfaction with each strategic attribute and the overall customer satisfaction, and the association of overall satisfaction to behavioral intentions (Study 1) as well as to objective financial performance (Study 2). Finally, we present the theoretical and managerial implications of our findings, and conclude.

Theoretical Backdrop of Customer Satisfaction

The Asymmetric Link Between Attribute-Level Satisfaction and Overall Satisfaction

The multi-attribute model of customer satisfaction specifies that overall customer satisfaction is a function of satisfaction at the attribute level (LaTour and Peat 1979; Churchill and Surprenant 1982; Oliver 1997; Mittal, Kumar, and Tsiros 1999). In the multi-attribute approach, satisfaction with different attributes combines in a compensatory manner. Customers evaluate each attribute to determine their attribute-level satisfaction and to ascertain overall satisfaction. Within the model, the relative importance of each attribute is based on the relative association of the attribute satisfaction with overall customer satisfaction. Thus, when satisfaction with an attribute is more highly associated with overall satisfaction it will have higher weight than another attribute with a lower association.

More recently, scholars have incorporated an asymmetry-based perspective in the multi-attribute model of overall satisfaction. According to the asymmetric approach (Anderson and Mittal 2000), the association between attribute-level satisfaction and overall satisfaction can take three forms—symmetric, negatively asymmetric, and positively asymmetric. The link may be *symmetric* such that a one-unit change in attribute satisfaction will result in an equal change in overall customer satisfaction as with a one-unit change in attribute dissatisfaction (Latour and

Peat 1979). This relationship is depicted in in Panel A of Figure 2. The link may exhibit *negative asymmetry* based on prospect theory (Kahneman and Tversky 1979), which suggests that attribute dissatisfaction is more consequential for customer evaluations than attribute satisfaction. The stronger impact of a one-unit change in attribute-dissactisfaction relative to a one-unit change in attribute satisfaction has been documented in previous studies conducted in a consumer context (Mittal, Ross, and Baldasare 1998). A negative asymmetry is depicted in Panel B of Figure 2 where the association of a one-unit change in attribute dissatisfaction (satisfaction) with overall satisfaction is relatively higher (lower). Attributes depicting a negative asymmetry are termed satisfaction-maintaining attributes (Anderson and Mittal 2000).

A *positive asymmetry* is based on the principle of customer delight (Oliver, Rust, and Varki 1997). According to this, a one-unit change in attribute satisfaction is more consequential for overall customer satisfaction than a one-unit change in attribute dissatisfaction. As shown in Panel C of Figure 2, a *positive asymmetry* asserts an increase in attribute satisfaction has a greater impact on the overall customer satisfaction than an equivalent decrease in attribute satisfaction. Attributes depicting a negative asymmetry are termed satisfaction-enhancing attributes (Anderson and Mittal 2000).

—Insert Figure 2 about here—

The literature review in Table 1 shows that virtually all attribute-level models of overall satisfaction in the B2B literature have assumed a symmetric relationship between attribute-level satisfaction and overall satisfaction (e.g., deLeon and Chatterjee 2015; Gil, Berenguer, and Cervera 2008; Grace and Weaven 2011; Homburg, Müller, and Klarmann 2011; Kumar 2002; Tsiros, Ross, and Mittal 2009; Walter et al. 2003). One reason this may occur is a belief that B2B customers are more deliberative and, as such, immune to biased processing which leads to

asymmetric effects. In contrast, our model posits that managers in a B2B setting are likely to experience similar biases as consumers (Puto 1987; Ross 1991) rendering it possible to experience both positive and negative asymmetries.

Consequences of Overall Customer Satisfaction

Based on attitude-intention theory (Fishbein and Ajzen 1975), scholars have posited a positive association between overall customer satisfaction and consequent behavioral intentions (Oliver 1980; Mittal, Kumar, and Tsiros 1999). The logic behind such an association is based on the idea that a positive attitude in the form of high overall customer satisfaction, manifests itself with behavioral intentions that are consistent with it. For a variety of reasons such as reinforcing attitude behavior consistency and decreasing cognitive dissonance, customers form intentions that are consistent with their experienced overall satisfaction (Oliver 1980, 1997; Mittal, Kumar, and Tsiros 1999; Mittal, Ross, and Baldasare 1998). Thus, our model expects a positive association between overall satisfaction and behavioral intentions with regard to repurchase, recommendation, and positive word-of-mouth (PWOM).

With the exception of Bowman and Narayandas (2004), studies of B2B satisfaction have not examined the financial implications of overall satisfaction management. One reason for this is the relatively small sample size used in most studies. Another may be the inability in obtaining firms' financial information. Consistent with the literature in marketing, our model specifies a direct link between overall customer satisfaction and firm financial performance.

Pilot Study: Identifying and Validating Key Strategic Attributes of B2B firms

This pilot study seeks to identify key attributes and to ascertain the prevalence of these attributes among B2B companies. Using a two-step process, we first conduct an extensive

literature review to identify attributes already used in the literature. In the second step, we used textual analysis to understand the relative prevalence of these attributes in practice.

Drivers of B2B Customer Satisfaction

To identify attributes that drive B2B customer satisfaction, we reviewed academic articles published in *Journal of Marketing, Journal of Marketing Research, Marketing Science, Journal of the Academy of Marketing Science, Journal of Retailing, Industrial Marketing Management,* and *Journal of Services Research* to find that over 30 articles focus on drivers of B2B customer satisfaction. As shown in Table 1, this review yielded four attributes; quality, pricing, safety, and CSR.

Quality of product/service. Quality of product/service refers to *customers' perceived performance of a supplier's offerings*. It is one of the most studied attributes in the customer satisfaction literature. Within the B2B literature, empirical findings suggest a positive effect (Chandrashekaran et al. 2007; Davis-Sramek et al. 2009; Homburg and Stock 2004) or a non-significant effect of product/service quality (Patterson, Johnson, and Spreng 1996) on overall customer satisfaction.

Pricing. Pricing refers to *customer perception of the extent to which a firm's pricing of its offerings is perceived as fair and competitive*. While "lowering price tends to be one of the easiest ways to improve satisfaction levels" (Keiningham et al. 2014, p. 39), lower price may also signal lower quality. A majority of the studies focusing on pricing have modeled its relationship with satisfaction as symmetric. One study found a positive asymmetry in the link between satisfaction on price and overall satisfaction (Van Doorn 2008), though the study focused on a single logistics company in Europe.

Safety. Safety refers to *customer perception of the extent to which a supplier assures the*

safety of the products, customers, and employees. Although "most managers say employee safety is a top priority" (Pagell, Veltri, and Johnston 2016, p. 12), safety has not received attention from marketing scholars; only one study in marketing investigated it as a part of a multi-dimensional construct, perceived product benefits (Spiteri and Dion 2004).

CSR. CSR refers to *customer perception of the extent to which a supplier voluntarily incorporates societal and stakeholder concerns in its value proposition*. CSR is a "general rubric of noneconomic buying criteria—criteria other than price… [and] quality" (Drumwright 1994, p. 1). While numerous consumer studies have shown that CSR may improve customer satisfaction and market value (Lichtenstein, Drumwright, and Braig 2004; Luo and Bhattacharya 2006), only few studies have empirically assessed its impact in B2B settings. For example, Homburg, Stierl, and Bornemann (2013) have demonstrated that CSR in business markets can foster customers' trust and psychological attachment to a supplier company.

Textual Analysis to Validating Attributes

To better understand the use of these attributes in practice, we conducted a textual analysis on the 10-K forms of publicly-traded firms. The 10-K report provides a comprehensive overview of a firm's business, and marketing scholars have utilized its information content to measure key marketing concepts (e.g., Lee et al. 2015).

Analysis. To execute the analysis we followed these steps. First, we created a dictionary of keywords that represent our focal strategic attributes (safety, CSR, quality, and pricing) based on the extant B2B satisfaction literature. Table 2 shows our dictionary of keywords. Second, we downloaded B2B firms' 10-Ks for 2015 (N = 4,604) and 2016 (N = 4,384) and investigated how

frequently words in our dictionary were mentioned in 10-Ks.[1] Third, based on the word count in the previous step, we selected the ten most frequently mentioned words for each attribute dimension and coded firm's usage of these important words dichotomously. Fourth, we computed firm-level word intensities for the four attributes. For example, if a firm uses 9, 7, 5, and 6 words out of the selected 10 words representing each attribute, the total word count across all attributes is 9 +7+5+6= 27. Out of the total of 27 words from the dictionary, 33.3 % (9/27) of the words pertain to safety, and similarly, 26%, 18.5%, and 22.2% of the words pertain to CSR, quality, and pricing respectively.

Results. Panel A of Figure 3 shows the relative intensity of all four attributes. The average intensity of safety and CSR (across all firms) in 2015 is 44.9%, which is comparable to pricing and product/service quality (55.1%). The pattern is similar in 2016 as shown in Panel B of Figure 3; the average intensity of safety and CSR (across all firms) is 44.7%, compared to the 55.3% of pricing and product/service quality combined. These results provide initial support for focusing on these four attributes for the next set of studies.

—Insert Table 2 and Figure 3 about here—

Study 1: Linking Attribute-Level Satisfaction to Overall Customer Satisfaction and Behavioral Intentions

To supplement our exploratory pilot study, we conduct Study 1 and empirically examine the asymmetric association between attribute satisfaction and overall customer satisfaction, as well as how overall customer satisfaction affects behavioral intentions.

[1] We classified firms as B2B according to their primary industry classification (Groening, Mittal, and Zhang 2016). Firms' Form 10-Ks were downloaded from the U.S. Securities and Exchange Commissions' EDGAR database (https://www.sec.gov/edgar/).

Data

We obtained data from a research collaborative that conducts a survey of B2B managers from different companies. The survey was run during 2016–2017. Participants rated a supplier of their own firm on (1) satisfaction with four attributes (safety, CSR, quality, pricing), (2) overall satisfaction, and (3) their behavioral intentions. They also provided demographic information (e.g., age, gender, job tenure). The final sample has 3,915 surveys filled out by B2B managers.

Measures

Attribute satisfaction. A seven-point Likert scale (1 = extremely dissatisfied, 7 = extremely satisfied) was used to measure items comprising each attribute. Five items measured satisfaction with safety ($\alpha = .952$), six items measured satisfaction with CSR ($\alpha = .958$), five items measured satisfaction with quality ($\alpha = .932$), and four items measured satisfaction with pricing ($\alpha = .917$). We conducted an exploratory factor analysis with Varimax rotation and all items loaded to the corresponding factor (see Table 3).

Next, we conducted a confirmatory factor analysis (CFA) to assess the convergent and discriminant validity of the twenty-items measuring attribute satisfaction with the four strategic areas. We find that the measurement has desirable properties in terms of convergent and discriminant validity (see Table 4). First, the composite reliability of each construct was greater than .60 and the average variance explained (AVE) by each construct was greater than .50. Thus, convergent validity was obtained (Bagozzi and Yi 1988; Fornell and Larcker 1981). Second, the AVE's were all greater than the maximum squared correlations between constructs (.615) indicating that discriminant validity was achieved as well (Fornell and Larcker 1981). Therefore, we took the average of the sub-items to calculate a composite rating for attribute satisfaction.

Operationalizing Asymmetry. To test the asymmetric effects of attribute satisfactions, we

separately operationalized attribute dissatisfaction and attribute satisfaction using the composite ratings. Specifically, dissatisfaction and satisfaction are denoted as follows:

$$\text{Dissatisfaction}=\begin{cases}|\text{Rating}-4|, \text{ if Attribute Score} < 4\\ 0, \text{ otherwise}\end{cases}$$
$$\text{and}$$
$$\text{Satisfaction}=\begin{cases}|\text{Rating}-4|, \text{ if Attribute Score} \geq 4\\ 0, \text{ otherwise}\end{cases}. \quad (1)$$

Overall satisfaction. We measured overall satisfaction using a single-item scale asking participants to rate their overall satisfaction with the supplier, taking into account his/her entire experience (1 = extremely dissatisfied, 7 = extremely satisfied). This is consistent with Mittal and Kamakura (2001) and Anderson and Sullivan (1993).

Behavioral intentions. We also measured three behavioral intentions of the participants regarding their interaction with the firm—i.e., repurchase intention, recommendation intention, and PWOM. Specifically, we asked (1) how likely the participant is to use the supplier for his/her next project/job, (2) how likely he/she is to recommend the supplier to a colleague/friend, and (3) how likely the participant is to say positive things about the supplier if someone asks (1 = extremely unlikely, 7 = extremely likely).

Control variables. We also asked participants about their personal involvement with the supplier (1 = not at all involved, 5 = extremely involved), their job tenure at the company (1 = fewer than 5 years, 2 = 5–10 years, 3 = 11–20 years, 4 = more than 20 years), and the sector in which the supplier operates (manufacturing goods, non-manufacturing supplies, manufacturing services, non-manufacturing services, or others). The sector was coded as a dummy variable with manufacturing goods as the base case. We controlled for these variables in our analysis.

The summary statistics and the correlation matrix are provided in Table 5. As expected, the four attribute dissatisfactions has a negative and statistically significant correlation with overall satisfaction (ps < .05), whereas the four attribute satisfactions has a positive and

statistically significant correlation with overall satisfaction (*p*s < .05). Overall satisfaction has a positive and statistically significant correlation with all three behavioral intention measures—i.e., repurchase, recommend, PWOM (*p*s < .05).

—Insert Table 3, 4, and 5 about here—

Model Specification

To examine the associations between attribute dissatisfaction/satisfaction, overall satisfaction, and behavioral intentions, we specified a system of equations as follows:

(2a) Overall satisfaction
$=\alpha_0$
$+\alpha_1$Dissatisfaction with safety$+\alpha_2$Satisfaction with safety
$+\alpha_3$Dissatisfaction with CSR$+\alpha_4$Satisfaction with CSR
$+\alpha_5$Dissatisfaction with quality$+\alpha_6$Satisfaction with quality
$+\alpha_7$Dissatisfaction with pricing$+\alpha_8$Satisfaction with pricing
$+\alpha_9$Involvement$+\alpha_{10}$Tenure$+\sum_{i=1}^{4}\eta_i$Sector$_i+\varepsilon$,

(2b) Repurchase
$=\beta_0+\beta_1$Overall satisfaction$+\beta_2$Involvement$+\beta_3$Tenure$+\sum_{i=1}^{4}\lambda_i$Sector$_i+\zeta$,

(2c) Recommend
$=\gamma_0+\gamma_1$Overall satisfaction$+\gamma_2$Involvement$+\gamma_3$Tenure$+\sum_{i=1}^{4}\phi_i$Sector$_i+\nu$, and

(2d) PWOM
$=\delta_0+\delta_1$Overall satisfaction$+\delta_2$Involvement$+\delta_3$Tenure$+\sum_{i=1}^{4}\psi_i$Sector$_i+\xi$.

To assess multicollinearity, we calculated the variance inflation factors (VIF's) after estimating each of the Equations 2a–2d using ordinary least squares (OLS). The maximum VIF was less than 4 indicating that multicollinearity is not an issue. Next, to test whether the error terms of the four equations are correlated, we obtained the residuals after estimating each equation through OLS. The correlations among all the estimated residuals were statistically significant (all *p*s < .05). Moreover, the Breusch-Pagan test of independence rejected the null hypothesis indicating that the error terms are not independent with each other ($\chi^2(6) = 3{,}584.334$,

$p < .01$) (Breusch and Pagan 1980). Therefore, we estimated Equations 2a–2d using seemingly unrelated regression (SUR), which accounts for the correlations between the errors, in turn increasing the efficiency of the estimation procedure (Zellner 1962).

Results

Results from the SUR model are provided in Table 6. The main effects of attribute dissatisfaction on overall satisfaction show that dissatisfaction with safety, dissatisfaction with CSR, and dissatisfaction with pricing respectively have a negative and statistically significant association with overall satisfaction, while dissatisfaction with quality has a non-significant association with overall satisfaction. In contrast, satisfaction with safety, satisfaction with CSR, satisfaction with quality, and satisfaction with pricing all have a positive and statistically significant association with overall satisfaction.

Next, we examined whether satisfaction with each attribute has a symmetric, a positively asymmetric, or a negatively asymmetric association with overall satisfaction. Table 7 offers the asymmetry testing results. First, the results show a negative asymmetry in the association between satisfaction with CSR and overall satisfaction, and satisfaction with pricing and overall satisfaction. Specifically, the association between dissatisfaction with CSR and overall satisfaction ($\alpha_3 = -.399$, $p < .01$) is greater than the association between satisfaction with CSR and overall satisfaction ($\alpha_4 = .165$, $p < .01$). Moreover, the difference in the absolute value of the dissatisfaction and satisfaction coefficients is statistically significant ($\chi^2(1) = 16.065$, $p < .01$). Similarly, the deleterious effect of dissatisfaction with pricing ($\alpha_7 = -.392$, $p < .01$) is larger than the beneficial effect of satisfaction with pricing ($\alpha_8 = .165$, $p < .01$; $\chi^2(1) = 25.269$, $p < .01$).

Second, satisfaction with quality demonstrates a positively asymmetric association with overall satisfaction. That is, the positive association between satisfaction with quality and overall

satisfaction (α_6 = .525, p < .01) is greater than the negative association between dissatisfaction with quality and overall satisfaction (α_5 = -.063, p > .10; $\chi^2(1)$ = 90.376, p < .01). Third, satisfaction with safety has a symmetric association with overall satisfaction. The absolute values of the slopes for dissatisfaction (α_1 = -.138, p < .05) and satisfaction with safety (α_2 = .130, p < .01) are not statistically different with each other ($\chi^2(1)$ = .017, p > .10); that is, satisfaction with safety has a symmetric association with overall satisfaction.

As expected, results from Equations 2b–2d show that overall satisfaction, in turn, increases all three behavioral intentions of the customers. Specifically, overall satisfaction has a positive and statistically significant association with repurchase intention (β_1 = .855, p < .01), likelihood to recommend (γ_1 = .937, p < .01), and PWOM (δ_1 = .930, p < .01).

Discussion

Study 1 supports key elements of the conceptual model presented in Figure 1, specifically the asymmetric association of attribute satisfaction and overall customer satisfaction, as well as the positive association of overall customer satisfaction and behavioral intentions. A key strength of this study is the multi-item measurement approach used for each attribute and the relatively large sample of business managers. However, Study 1 does not include financial performance, an issue rectified in Study 2. Further, Study 2 demonstrates the attribute-level linkages using single-item measures ensuring they can be used in large-scale surveys conducted by B2B companies.

—Insert Table 6 and 7 about here—

Study 2: Financial Consequences of Customer Satisfaction

Data

We used a sample of 2,380 business decision makers whose supplier is a publicly-traded

U.S. firm for this study. A research collaborative on B2B research provided the sample. In addition to the items collected from the survey, we collected the supplier firms' quarterly financial information from Standard & Poor's COMPUSTAT database.

Measures

Attribute satisfaction. In this study, we measured participants' satisfaction with the strategic areas using single-item scales. Recent research shows that the predictive validity of single-item measures is not different with that of multi-item measures (Bergkvist and Rossiter 2007). Moreover, demonstrating the results with single-item scales will increase the managerial use of the results as firms must often use single-item scales in their customer surveys. We asked participants to rate their overall satisfaction with each attribute, taking all related aspects into account (1 = extremely dissatisfied, 7 = extremely satisfied). Next, as in Study 1, we separately conceptualized participants' dissatisfaction and satisfaction with each attribute using Equation 1.

Overall satisfaction and behavioral intentions. We operationalized overall satisfaction and behavioral intentions (i.e., repurchase, recommend, PWOM) as described in Study 1.

Financial performance. We measured firm performance using three metrics: (1) sales, (2) gross margin, and (3) Tobin's q. Consistent with prior research (e.g., McAlister et al. 2016), we operationalized firm sales by taking the natural logarithm of a firm's quarterly sales. Gross margin was measured as the difference between a firm's sales and cost of goods sold. We also measured Tobin's q, which is based on capital market valuations and is widely used to assess long-term performance of a firm (Mittal et al. 2005; Sridhar et al. 2016). Following Chung and Pruitt (1994), we operationalized Tobin's q as:

(3) $$\text{Tobin's q} = \frac{\text{MVE}+\text{PS}+\text{DEBT}}{\text{TA}},$$

where MVE is the market value of equity, PS is the liquidation value of outstanding preferred

stock, DEBT is the value of debt, and TA is the book value of total assets.

Control variables. For overall satisfaction and behavioral intentions, we controlled for participants' involvement, job tenure, and their supplier's business sector (see Study 1). For firm financial performance, we controlled for firm-level (firm size, financial leverage, liquidity, and business sector) and industry-level (industry concentration and industry instability) factors. We capture firm size as book value of total assets (Sridhar et al. 2016), financial leverage as the ratio of long-term debt to total assets (Tuli and Bharadwaj 2009), and liquidity as the current ratio (i.e., the ratio of current assets to current liabilities) (McAlister, Srinivasan, and Kim 2007). Industry concentration was measured as the sum of squared market shares (i.e., Herfindahl-Hirschman Index) in the same two-digit SIC (Sridhar et al. 2016), and industry instability as the antilog of the standard error of the slope coefficient obtained from regressing log of industry sales on time, over the last five quarters (Keats and Hitt 1988). Consistent with prior research (McAlister, Srinivasan, and Kim 2007), we lagged control variables by one period (i.e., quarter) to minimize potential reverse causality issues. The summary statistics and correlations are in Table 8.

—Insert Table 8 about here—

Model Specification

In addition to the equations in Study 1, we included two equations in our system to examine the association between overall satisfaction and firm financial performance (i.e., sales, gross margin, and Tobin's q). Specifically, the equations are as follows:

(4a) Overall satisfaction
$=\alpha_0$
$+\alpha_1$Dissatisfaction with safety$+\alpha_2$Satisfaction with safety
$+\alpha_3$Dissatisfaction with CSR$+\alpha_4$Satisfaction with CSR
$+\alpha_5$Dissatisfaction with quality$+\alpha_6$Satisfaction with quality
$+\alpha_7$Dissatisfaction with pricing$+\alpha_8$Satisfaction with pricing

$$+\alpha_9 \text{Involvement}+\alpha_{10} \text{Tenure}+ \sum_{i=1}^{4} \eta_i \text{Sector}_i +\varepsilon,$$

(4b) Repurchase
$$=\beta_0+\beta_1 \text{Overall satisfaction}+\beta_2 \text{Involvement}+\beta_3 \text{Tenure}+ \sum_{i=1}^{4} \lambda_i \text{Sector}_i +\zeta,$$

(4c) Recommend
$$=\gamma_0+\gamma_1 \text{Overall satisfaction}+\gamma_2 \text{Involvement}+\gamma_3 \text{Tenure}+ \sum_{i=1}^{4} \phi_i \text{Sector}_i +\nu,$$

(4d) PWOM
$$=\delta_0+\delta_1 \text{Overall satisfaction}+\delta_2 \text{Involvement}+\delta_3 \text{Tenure}+ \sum_{i=1}^{4} \psi_i \text{Sector}_i +\xi.$$

(4e) ln(Sales)
$$=\theta_0+\theta_1 \text{Overall satisfaction}$$
$$+\theta_2 \text{Total assets}+\theta_3 \text{Financial leverage}+\theta_4 \text{Liquidity}$$
$$+\theta_5 \text{Industry concentration}+\theta_7 \text{Industry instability}+ \sum_{i=1}^{4} \iota_i \text{Sector}_i +\varsigma, \text{ and}$$

(4f) Gross margin
$$=\kappa_0+\kappa_1 \text{Overall satisfaction}$$
$$+\kappa_2 \text{Total assets}+\kappa_3 \text{Financial leverage}+\kappa_4 \text{Liquidity}$$
$$+\kappa_5 \text{Industry concentration}+\kappa_7 \text{Industry instability}+ \sum_{i=1}^{4} \rho_i \text{Sector}_i +\upsilon.$$

(4g) Tobin's q
$$=\tau_0+\tau_1 \text{Overall satisfaction}$$
$$+\tau_2 \text{Total assets}+\tau_3 \text{Financial leverage}+\tau_4 \text{Liquidity}$$
$$+\tau_5 \text{Industry concentration}+\tau_7 \text{Industry instability}+ \sum_{i=1}^{4} \varphi_i \text{Sector}_i +\omega.$$

We find that the maximum VIF in the model is less than 3 indicating that multicollinearity is not an issue. We also tested whether the six error terms in our system of equations are correlated. As in Study 1, the error terms in Equations 4a–4d had statistically significant correlations with each other (*p*s < .05). Moreover, the correlation among the error terms in Equations 4e–4g were positive and statistically significant (*p*s < .05). The results from the Breusch-Pagan test also indicated that the error terms are not independent with each other ($\chi^2(15) = 2{,}996.633$, $p < .01$; Breusch and Pagan 1980). Therefore, we use a SUR approach to estimate the system of equations (i.e., Equations 4a–4g).

Results

We report the results are in Table 9. Consistent with the results from Study 1, attribute

dissatisfaction has a negative association with overall satisfaction while attribute satisfaction has a positive association with overall satisfaction. All the main effects are statistically significant at $p < .05$. One exception is dissatisfaction with quality which is non-significant ($p > .10$).

As illustrated in Table 10, the pattern of symmetric/asymmetric associations between attribute satisfaction and overall satisfaction is consistent with those in Study 1. Specifically, there is a negatively asymmetric association of satisfaction with CSR and overall satisfaction ($\chi^2(1) = 4.500$, $p < .05$). Pricing also shows a negative asymmetry in the association with overall satisfaction ($\chi^2(1) = 8.831$, $p < .01$). Specifically, the negative association of dissatisfaction with CSR ($\alpha_3 = -.310$, $p < .01$) is greater than the positive association of satisfaction with CSR ($\alpha_4 = .178$, $p < .01$). The negative association of dissatisfaction with pricing ($\alpha_7 = -.359$, $p < .01$) is greater than the positive association of satisfaction with pricing ($\alpha_8 = .197$, $p < .01$). In contrast, satisfaction with quality has a positively asymmetric association with overall satisfaction ($\chi^2(1) = 36.781$, $p < .01$). Specifically, satisfaction with quality ($\alpha_6 = .397$, $p < .01$) has a larger impact on overall satisfaction than dissatisfaction with quality ($\alpha_5 = -.069$, $p > .10$). Finally, dissatisfaction with safety ($\alpha_1 = -.141$, $p < .05$) and satisfaction with safety ($\alpha_2 = .177$, $p < .01$) combine to form a symmetric association with overall satisfaction ($\chi^2(1) = .261$, $p > .10$).

Next, overall satisfaction enhances firm financial performance. Specifically, overall satisfaction is positively associated not only with sales ($\theta_1 = .076$, $p < .01$) and gross margin ($\kappa_1 = .288$, $p < .01$), but also with Tobin's q ($\tau_1 = .048$, $p < .05$). We also find that the associations of overall satisfaction with behavioral intentions are, again, positive and statistically significant such that overall satisfaction has a positive association with repurchase intention ($\beta_1 = .782$, $p < .01$), likelihood to recommend ($\gamma_1 = .907$, $p < .01$) and PWOM ($\delta_1 = .922$, $p < .01$).

Reassuringly, results from Study 2 indicate that satisfaction with CSR/pricing, quality,

and safety each have a negative asymmetric, a positive asymmetric, and a symmetric association with overall satisfaction respectively. Importantly, overall satisfaction leads to enhanced behavioral intentions as well as short- and long-term financial performance of the firm.

—Insert Table 9 and 10 about here—

Robustness Analysis

We conducted additional analyses to assess the robustness of our results. These are summarized below.

Unobserved industry-specific effects. The main analysis included industry-level covariates (industry concentration and instability) in Equations 4e–4g to account for industry-specific effects on firm financial performance. However, since the data cover a wide range of industries (i.e., 49 two-digit SIC code industries), we may still not be capturing all unobserved industry-specific effects. To account for such effects, we estimated the system of equations by including industry-fixed effects. As we can see in Web Appendix A and B, the results regarding the association between attribute satisfaction, overall satisfaction, and behavioral intentions remained unchanged. Likewise, overall satisfaction had a positive and effect on sales ($\theta_1 = .039$, $p < .05$), gross margin ($\kappa_1 = .153$, $p < .05$), and Tobin's q ($\tau_1 = .029$, $p < .10$)

Addressing potential endogeneity. Correlated unobservables could drive both attribute satisfaction and overall satisfaction, and induce an endogeneity bias in the estimation. To address this issue, we used the control function approach (Petrin and Train 2010). In the first stage, we estimated eight auxiliary regressions for each of the attribute dissatisfaction and satisfaction variables. Consistent with prior research, we used industry-average attribute dissatisfaction (satisfaction) as excluded variables for each of the attribute dissatisfaction (satisfaction) variables (McAlister et al. 2016; Sridhar et al. 2016). Industry-average dissatisfaction (satisfaction)

variables meet the *relevance* criterion (i.e., the excluded variables should be correlated to the endogenous variable) since a firm's attribute dissatisfaction (satisfaction) is likely related to industry attribute dissatisfaction (satisfaction) due to common institutional, regulatory, and competitive determinants. Industry-average dissatisfaction (satisfaction) variables also meet the *restriction* criterion (i.e., the excluded variables should not be correlated to the shock in the dependent variable) since a B2B buyer is unlikely to use industry-average attribute dissatisfaction (satisfaction) as the primary criterion to evaluate the overall satisfaction with a focal firm. Specifically, we estimated the following model:

$$\begin{aligned}&\text{Attribute (dis)satisfaction}_j \\ &=\pi_0+\pi_1\text{Industry average (dis)satisfaction}_j+\pi_2\text{Involvement}+\pi_3\text{Tenure}+\sum_{i=1}^{4}\sigma_i\text{Sector}_i+\mu_j, \\ &\text{where } j = 1,\ldots,8.\end{aligned} \tag{5}$$

Next, we collected the residuals from Equation 5 and estimated our system of equations while controlling for the residuals (i.e., $\hat{\mu}_1,\ldots,\hat{\mu}_8$) in the overall satisfaction model (i.e., Equation 4a). We found that the coefficients for all of these residuals were statistically non-significant (*p*s > .10)—except for that for satisfaction with pricing ($p < .01$)—indicating that only satisfaction with pricing has a potentially endogenous association with overall satisfaction (see Web Appendix C). We rerun our model controlling for the residuals from the auxiliary regression model for satisfaction with pricing.

Web Appendix D and Web Appendix E show the results generally remained unchanged. Satisfaction with pricing, quality, and safety had a negative asymmetric, positive asymmetric, and symmetric association respectively with overall satisfaction. Satisfaction with CSR demonstrated a symmetric association with overall satisfaction instead of a negative and asymmetric association as in Studies 1 and 2. Finally, overall satisfaction enhanced all three behavioral intentions as well as short- and long-term financial performance (i.e., sales revenue,

gross margin, and Tobin's q).

Discussion

Executives in B2B settings are increasingly emphasizing overall customer satisfaction as a way to build enduring customer relationships and to achieve superior financial performance, but research guidance on using these customer satisfacion surveys is sparse. This is surprising, given the robust literature on customer satisfaction in consumer settings. There are important research gaps such as examining the asymmetric association of attribute satisfaction and overall customer satisfacion, and demonstrably showing how overall customer satisfaction affects behavioral intentions and financial performance (as shown in Table 1). Examining these issues using a broad and representative sample of B2B managers can provide substantive guidance to academics as well as practitioners. The current research accomplishes these goals.

The pilot study reviewed academic research to identify nearly 30 empirical articles that examined customer satisfaction in B2B contexts, focusing on attribute-level measures. Surprisingly, the review shows fewer than 10% have focused on attributes beyond price and performance (i.e., attributes such as safety and CSR). Our textual analysis of B2B firms' annual reports reveals an almost equal mention of CSR and safety relative to price and quality. Study 1, uses a large-scale and representative sample to examine the asymmetric association between attribute-level satisfaction and overall customer satisfaction. We replicate our findings in Study 2 and further suggest the financial implications of B2B customer satisfaction.

Theoretical Implications

Results from Studies 1 and 2 show that attribute-level satisfaction can exhibit symmetry, positive asymmetry, and negative asymmetry in its linkage to overall customer satisfaction.

Specifically, CSR and pricing exhibits *negatively asymmetric* relationships while product/service quality exhibits *positive asymmetry* in its impact on overall customer satisfaction. Finally, safety exhibits a *symmetric* association with overall customer satisfaction. Theoretically, these results suggest the need to take a broadened view of decision making in B2B contexts. It is typically assumed that B2B situations afford a more systematic, deliberative, and rational approach to decision making precluding the possibility of biases such as loss aversion and delight. Yet, there is precedence in the marketing literature that B2B decision makers may be just as susceptible to cognitive biases (Puto 1987; Ross 1991). The asymmetries possibly reveal biases not only affect the processing of satisfaction information, but also other decisions confronted by B2B managers.

Much of the literature on classifying attributes in different categories such as satisfiers and dissatisfiers (Anderson and Mittal 2000), hedonic and utilitarian attributes (Chitturi, Raghunathan, and Mahajan 2008) is based on measurement done in consumer domains. Few studies using qualitative research approaches suggest that B2B managers may not even consider non-economic attributes such as CSR in their decision making (Drumwright 1994). Our results suggest the need to revise such assumptions. Indeed, there is a need to theoretically classify the different attributes that B2B decision makers consider in evaluating their suppliers. Doing so can help scholars to move beyond the traditional utilitarian attributes of price and quality, as well as to more comprehensively specify the multi-attribute satisfaction model of B2B customers. In this regard, there is a particular need to more deeply study CSR and safety as key attributes in B2B contexts. Our information conversations with B2B managers reveal that safety is becoming even more important in B2B decisions, particularly in light of events such as BP's Deepwater Horizon spill which cost the company dearly (Harlow, Brantley and Harlow 2011).

In the context of customer satisfaction, we could only find one other study (Bowman and

Narayandas 2004) that had examined financial implications (specifically, customer margins). Yet, B2B companies are under acute pressure to increase sales, expand margins, and deliver long-term value. This research, therefore, makes a fundamental and important contribution by establishing the specific and concrete association between overall customer satisfaction and financial consequences. Prior research on customer satisfaction has examined differences between goods and services (Anderson, Fornell, and Rust 1997) but not between consumer and business markets. Thus, it has been assumed that findings from consumer research are directly applicable to business markets. This may not be the case. Specifically, Anderson, Fornell, and Mazvancheryl (2004; Figure 1) found widely varying estimates (ranging from -.50 to 2.70) between overall customer satisfaction and firm value (Tobin's *q*). However, they did not examine B2B as a separate industry. By providing a baseline estimate of the association of overall customer satisfaction with firm value, margins, and sales our research provides the empirical basis for others to more deeply examine attribute-level customer satisfaction in B2B contexts. It is an important research topic that has not received sufficient attention, and we hope our work will provide the necessary fillip in this regard.

Managerial Implications

From a managerial perspective, our results show the benefit of investing in attribute-level satisfaction to optimize overall customer satisfaction. Managers however will seek guidance toward optimal resource allocation by asking: "On which attributes should our firm improve overall performance to optimize overall customer satisfaction and maximize financial performance?" Our work provides guidance in this regard, after recognizing that answering this question must account for the differing asymmetry exhibited by each attribute. Anderson and Mittal (2000) caution how firms can often make incorrect choices if they ignore the asymmetry

in the attribute-overall satisfaction link.

To illustrate this point in our B2B context, we calculated a satisfaction impact index (SII) and dissatisfaction impact index (DII) for each attribute. Using the estimates in Table 9, we calculated the SII for sales as SII = (Impact of attribute on satisfaction) × (Impact of satisfaction on sales). For example, for the quality attribute, the SII is .397 × .076. Next, for any attribute, we calculated the DII for sales as DII = (Impact of attribute on satisfaction) × (Impact of dissatisfaction on sales). For example, for the quality attribute, the DII is -.069 × .076. Figure 4 shows the plots of SII and DII for all attributes, with each sales (Panel A), gross margin (Panel B), and Tobin's q (Panel C) as the dependent variable.[2]

—Insert Figure 4 about here—

Using the SIIs and DIIs for resource allocation can help the firm both from a functional as well as an organizational perspective. From a *functional perspective,* firms could consider the relative impact of dissatisfaction versus satisfaction within one attribute, on performance. For example, the DII/SII ratio for pricing on sales is 27.47/15.06 = 1.82, indicating that focusing on mitigating dissatisfaction (e.g., by eliminating negative pricing experiences) is likely to provide firms with 1.82 times more financial benefit than focusing on enhancing satisfaction with pricing. Similarly, the DII/SII ratio for CSR is 1.74, indicating that investing in CSR should also focus first on eliminating negative experiences. In contrast, the DII/SII ratios for quality and safety are 0.18 and 0.80. Firms should focus more on enhancing attribute-level satisfaction than on mitigating attribute-level dissatisfaction. As prior research shows (Mittal, Ross, and Baldasare 1998) enhancing satisfaction is not the mirror image or obverse of mitigating dissatisfaction. The results transfer to gross margin and Tobin's q as the dependent variable (see Panels B and C in

[2] The SII and DII for sales and Tobin's q are multiplied by 1000 for ease of readability, without loss of generality.

Figure 4). Taken together, the insight is that resource allocation emphasis within each functional area should be based on the values of DII and SII for that attribute.

Next, from the *organizational perspective*, what should be a firm's key priorities areas? To answer this question, firms should rank order the values of DII and SII across attributes, in descending order. When we do so using the SIIs and the DIIS for sales (Panel A of Figure 4), we observe that the four largest impact indices are the SII of quality (30.35), followed by the DII index of pricing (27.47), the DII of CSR (23.70), and the SII of pricing (15.06) respectively. The insight here is that investing in each of these four areas, with either a dissatisfaction mitigating or satisfaction enhancing approach (as dictated by the DII or SII) should be the key focus for a firm. The results transfer to gross margin and Tobin's q as the dependent variable, as illustrated in Panels B and C of Figure 4. Thus, the asymmetry perspective informs resource allocation at both the *organizational and functional level*, in ways that traditional key driver analysis cannot.

Limitations

The obvious limitations of this study also provide several promising avenues for future research. First, the empirical approach of our study is limited to a single threshold or linear inflection point, which parsimoniously illustrates the asymmetric nature of the link between attribute satisfaction and overall satisfaction. As such, future studies should investigate nonlinear effects to represent increasing and decreasing returns. Second, because of data availability, we could not take into account the dynamic effect of attributes (e.g., Van Doorn 2008). Third, we encourage future research to examine how various contingencies moderate the performance and satisfaction implications of attributes. Finally, our sample is limited to the U.S. firms, so it cannot be generalized in different countries. Future studies could investigate cross-cultural effect of strategic attributes on customer satisfaction.

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FIGURE 1
Attribute-Level Satisfaction, Overall Customer Satisfaction, and Performance Outcomes in Business-to-Business Firms

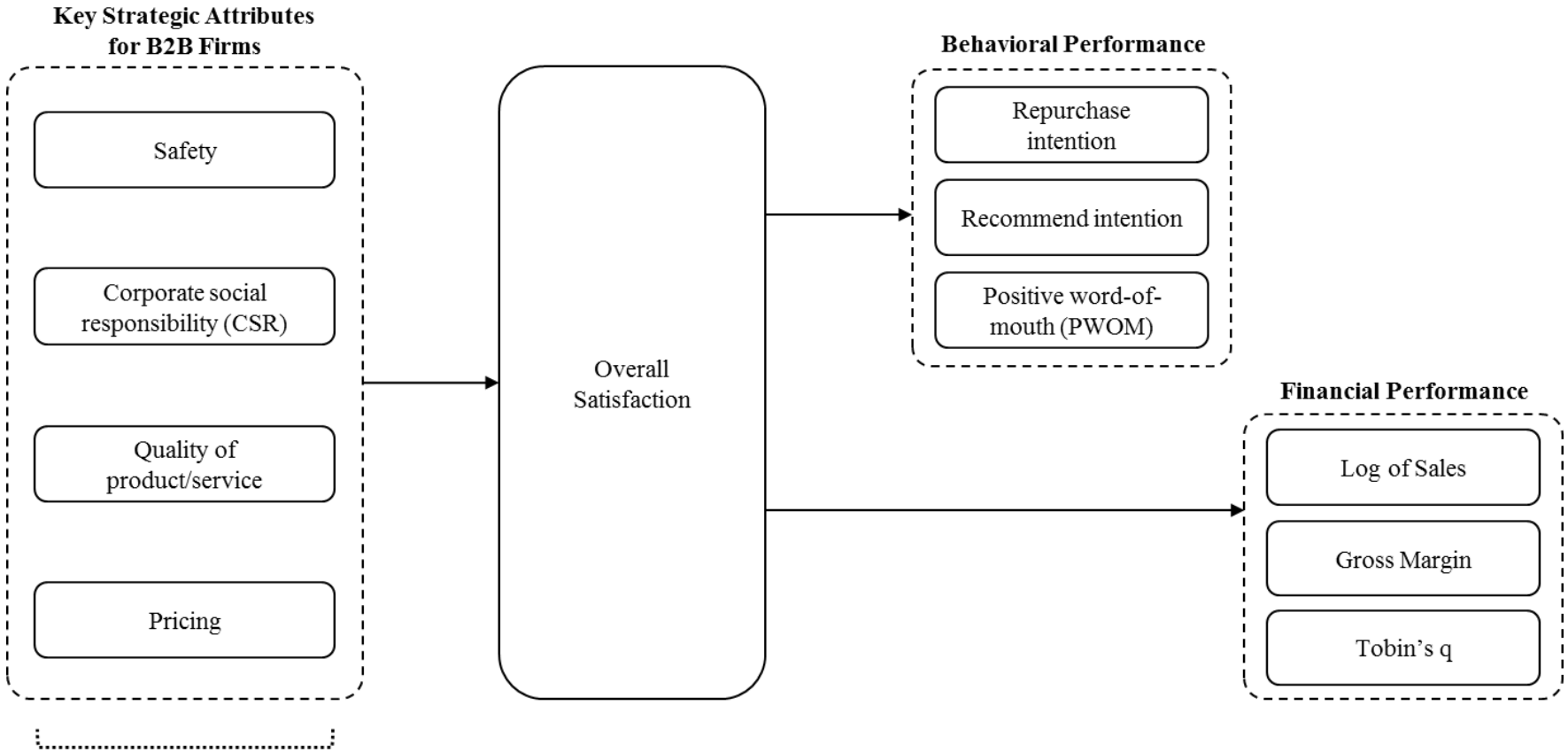
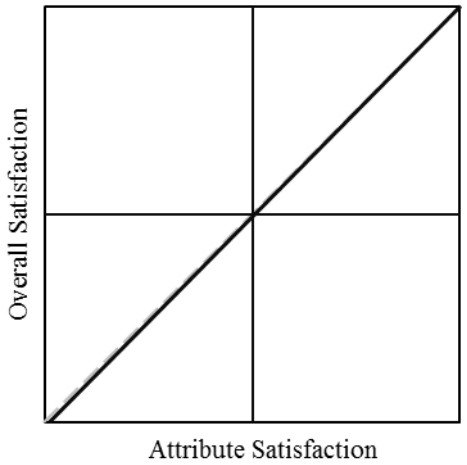
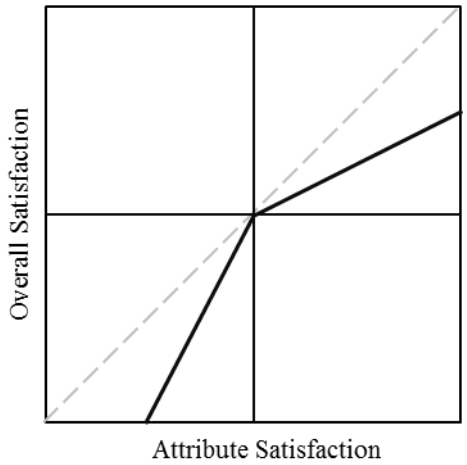


FIGURE 2
Conceptual Illustration of Symmetry and Asymmetry in the Relationship between Attribute Satisfaction and Overall Satisfaction

A. Symmetry



B. Negative Asymmetry



C. Positive Asymmetry

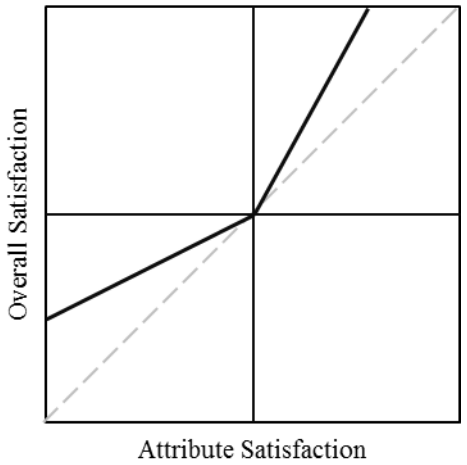
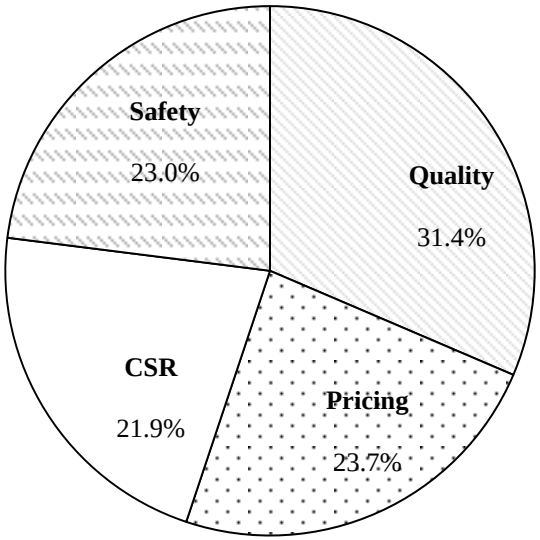
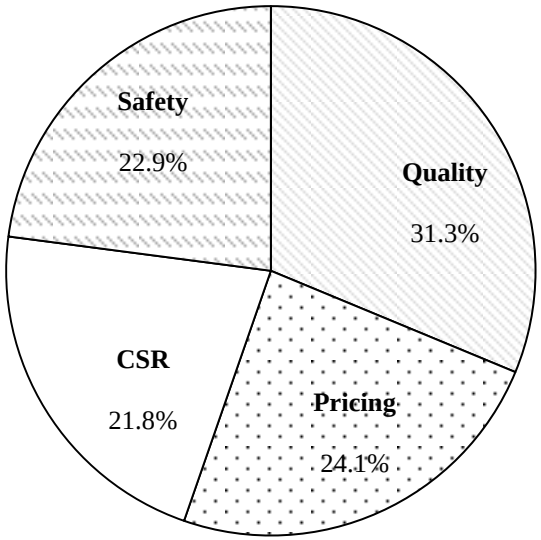


FIGURE 3
Pilot Study: Relative Intensity of Key Strategic Attributes from Textual Analysis of B2B firms

A. Year 2015



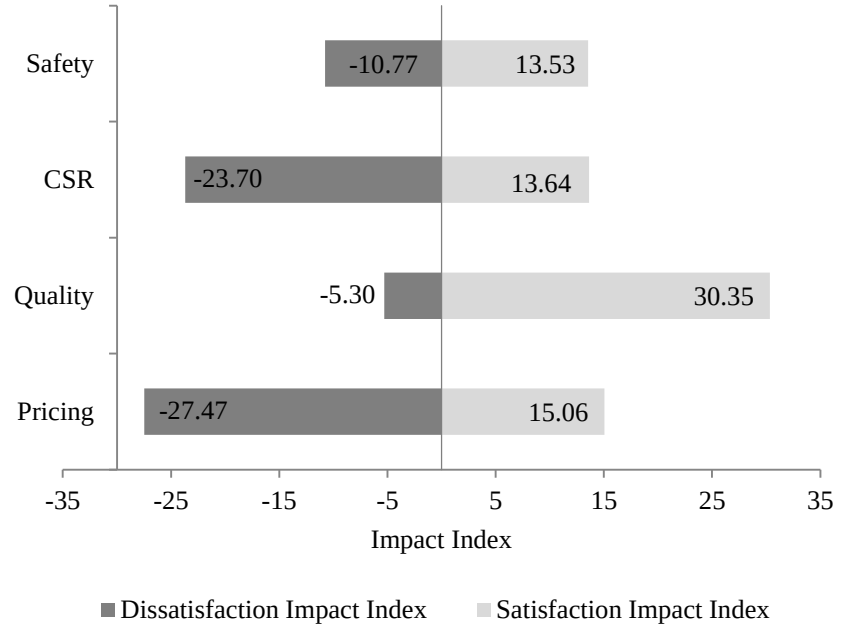
B. Year 2016



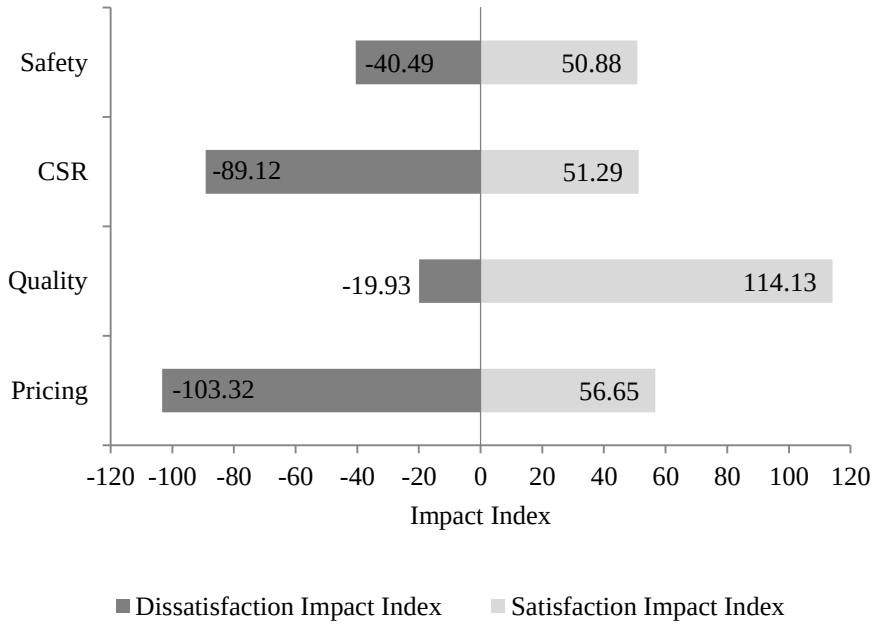
Note: Relative intensity is measured as the proportion of keywords related to each attribute appearing in B2B companies' Form 10-Ks (N = 4,604 for 2015 and 4,384 for 2016).

FIGURE 4
Study 2: Satisfaction Impact Index (SII) and Dissatisfaction Impact Index (DII)

A. Ln(Sales)



B. Gross Margin



Note: The satisfaction (dissatisfaction) impact index measures the unit-change in financial performance (i.e., sales, gross margin) associated with a unit-change in satisfaction (dissatisfaction) with the attribute.

FIGURE 4 (CONTINUED)
Study 2: Satisfaction Impact Index (SII) and Dissatisfaction Impact Index (DII)

C. Tobin's q

Note: The satisfaction (dissatisfaction) impact index measures the unit-change in financial performance (i.e., Tobin's q) associated with a unit-change in satisfaction (dissatisfaction) with the attribute.

TABLE 1
Literature Review: Empirical Marketing Studies on B2B Customer Satisfaction

References	Context	Key Strategic Attributes in B2B Markets				Assumed Relationship Between Attribute Satisfaction and Overall Satisfaction[a]	Outcomes of B2B Satisfaction			
							Behavioral Intentions			
		Safety	CSR	Quality	Pricing		Repurchase Intention	Recommend Intention	Positive Word-of-Mouth[b]	Objective Financial Performance
Current Study	Survey of 2,380 B2B managers in publicly-traded U.S. firms, merged with COMPUSTAT	√	√	√	√	Negative asymmetry, positive asymmetry, symmetry	√	√	√	Sales revenue, gross margin, firm value
Studies on the Asymmetric Effect of Attribute Satisfaction/Performance on Overall Satisfaction										
Bowman and Narayandas (2004)	Survey of 596 customers of a major vendor in the processed metal business, merged with a vendor's financials			√		Negative asymmetry				Customer margin
Van Doorn and Verhoef (2008)	Survey of about 850 customers of a European professional logistics service provider			√	√	Negative asymmetry				
Studies Examining Attributes Other Than Quality and Pricing										
Homburg, Stierl, and Bornemann (2013)	Survey of 200 supplier–customer dyads in a wide range of B2B industries		√	√	√	N/A	√			
Spiteri and Dion (2004)	Survey of 220 veterinary physicians	√		√	√	Symmetry	√			

TABLE 1 (CONTINUED)
Literature Review: Empirical Marketing Studies on B2B Customer Satisfaction

References	Context	Key Strategic Attributes in B2B Markets				Assumed Relationship Between Attribute Satisfaction and Overall Satisfaction[a]	Outcomes of B2B Satisfaction			
							Behavioral Intentions			
		Safety	CSR	Quality	Pricing		Repurchase Intention	Recommend Intention	Positive Word-of-Mouth[b]	Objective Financial Performance
Studies Examining Both Antecedents and Outcomes of B2B Satisfaction										
Blocker et al. (2011)	Survey of 800 customers of information and communication technology services across 5 countries			√	√	Symmetry	√			
Eggert and Helm (2003)	Survey of 301 purchasing managers in Germany			√	√	Symmetry	√	√	√	
Faroughian et al. (2012)	Survey of 167 executives in UK-based small and medium-sized enterprises			√	√	Symmetry			√	
Janita and Miranda (2013)	Survey of 197 vendor-side users from construction firms operating in a Spanish e-marketplace			√	√	Symmetry	√			
Lam et al. (2004)	Survey of 268 corporate customers of courier services			√	√	Symmetry	√	√		
Lewin (2009)	Survey of 560 purchasing professionals who are members of the Institute for Supply Management			√	√	Symmetry	√			

TABLE 1 (CONTINUED)
Literature Review: Empirical Marketing Studies on B2B Customer Satisfaction

References	Context	Key Strategic Attributes in B2B Markets				Assumed Relationship Between Attribute Satisfaction and Overall Satisfaction[a]	Outcomes of B2B Satisfaction			
							Behavioral Intentions			
		Safety	CSR	Quality	Pricing		Repurchase Intention	Recommend Intention	Positive Word-of-Mouth[b]	Objective Financial Performance
Ramaswami and Arunachalam (2016)	Survey of 180 dealers in an equipment financing firm and their 600 customers			√		Symmetry	√	√		
Chandrashekaran et al. (2007)	Survey of about 4,000 business customers of ABC			√		Symmetry		√	√	
Davis-Sramek et al. (2009)	Survey of 389 retail customers of a large consumer durables manufacturer			√		Symmetry	√			
Flint, Blocker, and Boutin (2010)	Survey of 414 purchasing managers across a wide variety of industries			√		Symmetry	√			
Patterson, Johnson, and Spreng (1996)	Survey of 128 client organizations in a consultancy industry			√		Symmetry	√[c]			
Studies Examining Antecedents or Outcomes of B2B Satisfaction										
Gil, Berenguer, and Cervera (2008)	Survey of 194 managers of bank offices in Spain			√	√	Symmetry				
Grace and Weaven (2011)	Survey of 263 Australian franchisees			√	√	Symmetry				
Van Doorn (2008)	Survey of 220 customers of a large European logistics company			√	√	Symmetry				

TABLE 1 (CONTINUED)
Literature Review: Empirical Marketing Studies on B2B Customer Satisfaction

References	Context	Key Strategic Attributes in B2B Markets				Assumed Relationship Between Attribute Satisfaction and Overall Satisfaction[a]	Outcomes of B2B Satisfaction			
							Behavioral Intentions			
		Safety	CSR	Quality	Pricing		Repurchase Intention	Recommend Intention	Positive Word-of-Mouth[b]	Objective Financial Performance
Walter et al. (2003)	Survey of 230 purchasing professional in German companies			√	√	Symmetry				
Homburg and Stock (2004)	Survey of 164 salespeople-business customer dyads mostly in manufacturing industries			√		Symmetry				
Homburg, Müller, and Klarmann (2011)	Survey of 56 sales managers, 195 sales representatives, and 538 customers across multiple industries			√		Symmetry				
deLeon and Chatterjee (2015)	Survey of 123 U.S. organizations from diverse industries			√		Symmetry				
Kumar (2002)	Survey of 249 representatives in customer organizations in IT products/services industries					Symmetry	√			
Tsiros, Ross, and Mittal (2009)	Survey of 76 alumnae at a Midwestern business school, and experiment on 80 MBA students					Symmetry	√			

[a] We focus on symmetries/asymmetries in the link between t attribute-level satisfaction and overall customer satisfaction.
[b] We also included a general concept of word-of-mouth.
[c] Measured as a purchase intention.

TABLE 2
Pilot Study: Dictionary of Words and Frequency Count on 10-Ks of B2B Firms in the U.S.

	Safety			CSR			Quality			Price		
	Word	Freq. (2015)	Freq. (2016)	Word	Freq. (2015)	Freq. (2016)	Word	Freq. (2015)	Freq. (2016)	Word	Freq. (2015)	Freq. (2016)
1	*risk*	378,706	431,904	*legal*	139,199	154,885	*service/product*	693,863	786,273	*rate*	798,156	933,761
2	*security*	159,222	171,894	*environment*	35,672	36,435	*performance*	318,186	349,582	*price*	563,148	638,106
3	*compliance*	118,309	125,898	*responsibility*	31,807	31,394	*technology*	141,538	146,782	*discount*	115,146	139,929
4	*safety*	60,822	62,817	*fraud*	24,882	24,912	*assurance*	82,759	83,378	*fee*	92,540	102,784
5	*protection*	59,050	62,078	*giving*	19,280	20,135	*quality*	79,850	83,858	*charge*	80,775	89,047
6	*hazardous*	19,969	19,448	*ethics*	14,323	13,796	*effectiveness*	70,480	70,648	*premium*	56,763	67,253
7	*safe*	13,027	14,170	*pollution*	11,101	11,278	*timely*	42,653	43,128	*billing*	12,524	14,189
8	*privacy*	10,904	12,245	*emission*	10,440	11,015	*reliability*	28,051	28,602	*expensive*	10,804	11,238
9	*accident*	9,861	10,860	*climate*	10,130	10,727	*expertise*	14,037	14,170	*affordable*	8,569	9,694
10	*protective*	3,857	4,240	*contamination*	8,964	9,134	*convenience*	7,687	8,263	*promotion*	7,789	8,424
11	*recall*	3,790	4,498	*welfare*	4,451	4,940	*functionality*	7,489	7,552	*luxury*	1,140	853
12	toxic	3,687	3,588	sustainable	3,116	3,146	innovative	7,236	7,709	*economical**	873	892
13	threat	2,957	3,108	discrimination	2,490	2,485	innovation	6,170	6,729	affordability	764	744
14	healthy	2,695	2,889	ethical	2,262	2,225	capability	5,919	5,914	fare	366	372
15	defective	2,545	2,685	sustainability	1,473	1,854	capable	5,475	6,218	cheap	76	25
16	compliant	2,356	2,394	bribery	1,368	1,551	protocol	5,275	4,996			
17	incidence	1,755	1,783	legality	1,285	1,359	enhancement	4,971	4,962			
18	hazard	1,734	1,663	corruption	1,198	1,271	practical	4,689	11,228			
19	harmful	1,308	1,422	legitimate	1,031	1,038	desirable	4,530	4,667			
20	osha	1,013	986	pollutant	772	814	expert	4,039	4,046			
21	risky	763	769	fairness	686	931	manual	1,979	2,164			
22	danger	539	490	community	381	350	responsive	1,694	1,579			
23	dangerous	527	547	kyoto	279	174	convenient	1,512	1,674			
24	msha	148	294	honesty	209	230	timeliness	996	949			
25	osh	21	48	philanthropic	137	150	durable	967	1,014			
26	frsa	20	-	csr	117	157	usefulness	743	974			
27	defection	10	10	lawfulness	81	77	dependable	690	813			
28	toxicant	4	9	ngo	50	89	responsiveness	633	642			
29				legitimacy	21	21	durability	618	576			
30				prosocial	2	-	supportive	604	571			
31				corruptive	2	2	credible	458	523			
32							credibility	436	433			
33							desirability	252	240			
34							skillful	15	5			
35							practicality	13	109			
36							innovativeness	11	11			
37							supportiveness	5	2			

* This word became a part of a list of the top 11 most frequently used words in 10-Ks of 2016.
N = 4,604 for 2015 and 4,384 for 2016
Note: We used the eleven most frequently used words (in italics) to calculate the intensity of the attributes.

TABLE 3
Study 1: Exploratory Factor Analysis of the Satisfaction Items (Multi-Item Scales)

Dimension	Item	1	2	3	4	Uniqueness	α
Safety	Employees comply with safety protocol	**.717**	.398	.261	.218	.212	.952
	Employees behave in a safe manner	**.736**	.370	.293	.196	.197	
	Respects and follows the safety standards of our company	**.739**	.352	.303	.206	.196	
	Displays and maintains a culture of safety	**.723**	.385	.284	.205	.207	
	Makes employee safety a priority	**.700**	.427	.253	.219	.216	
CSR	Has protocols to help with sustainability & social responsibility	.316	**.737**	.256	.268	.220	.958
	Employees comply with sustainability protocol	.354	**.746**	.255	.247	.192	
	Employees behave in a socially responsible & sustainable manner	.371	**.725**	.271	.217	.217	
	Maintains a culture of sustainability	.322	**.773**	.258	.201	.192	
	Maintains a culture of social responsibility	.330	**.767**	.244	.216	.197	
	Makes changes to enhance sustainability & social responsibility	.326	**.754**	.207	.233	.229	
Quality	Error-free performance of products/services	.247	.280	**.692**	.286	.300	.932
	Meeting our expectations/requirements	.270	.272	**.756**	.282	.202	
	On-time delivery of products and services (meets schedule, not late)	.260	.241	**.689**	.277	.323	
	Meets technical specifications	.318	.272	**.722**	.218	.256	
	Durability of product/service	.310	.272	**.705**	.244	.274	
Pricing	Offers a fair price for its products/services	.275	.316	.439	**.630**	.236	.917
	Offers the lowest price of all suppliers	.227	.313	.309	**.704**	.259	
	Is flexible in pricing--i.e., will change pricing to meet our needs	.255	.354	.324	**.616**	.325	
	Offers competitive rates	.284	.311	.387	**.634**	.272	

N = 3,915
Note: The axes of the factors are rotated using Varimax rotation.

TABLE 4
Study 1: Confirmatory Factor Analysis of the Satisfaction Items

Dimension	Item	Standardized Loading	Average Variance Explained	Composite Reliability
Safety	Employees comply with safety protocol	.891	.799	.952
	Employees behave in a safe manner	.897		
	Respects and follows the safety standards of our company	.898		
	Displays and maintains a culture of safety	.895		
	Makes employee safety a priority	.888		
CSR	Has protocols to help with sustainability & social responsibility	.883	.793	.958
	Employees comply with sustainability protocol	.900		
	Employees behave in a socially responsible & sustainable manner	.889		
	Maintains a culture of sustainability	.899		
	Maintains a culture of social responsibility	.895		
	Makes changes to enhance sustainability & social responsibility	.878		
Quality	Error-free performance of products/services	.840	.735	.933
	Meeting our expectations/requirements	.898		
	On-time delivery of products and services (meets schedule, not late)	.826		
	Meets technical specifications	.862		
	Durability of product/service	.857		
Pricing	Offers a fair price for its products/services	.882	.734	.917
	Offers the lowest price of all suppliers	.855		
	Is flexible in pricing--i.e., will change pricing to meet our needs	.825		
	Offers competitive rates	.864		

N = 3,915
Notes: All loadings are significant at $p < .01$.
Comparative fit index = .972; Root mean square error of approximation = .060; Standardized root mean square residual = .020; Goodness of fit index = .935

TABLE 5
Study 1: Summary Statistics and Correlations

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Overall Satisfaction	5.572	1.217																	
2	Future Use	5.763	1.280	**.731**																
3	Recommend	5.573	1.356	**.762**	**.772**															
4	PWOM	5.644	1.340	**.767**	**.743**	**.827**														
5	Safety (Dissatisfaction)	.052	.325	**-.419**	**-.340**	**-.310**	**-.323**													
6	Safety (Satisfaction)	1.544	1.034	**.649**	**.569**	**.583**	**.588**	**-.241**												
7	CSR (Dissatisfaction)	.069	.352	**-.443**	**-.356**	**-.356**	**-.359**	**.816**	**-.235**											
8	CSR (Satisfaction)	1.339	1.020	**.652**	**.545**	**.596**	**.586**	**-.200**	**.761**	**-.256**										
9	Quality (Dissatisfaction)	.091	.412	**-.450**	**-.372**	**-.369**	**-.378**	**.656**	**-.220**	**.628**	**-.195**									
10	Quality (Satisfaction)	1.593	.936	**.749**	**.674**	**.688**	**.699**	**-.243**	**.687**	**-.256**	**.658**	**-.378**								
11	Pricing (Dissatisfaction)	.114	.431	**-.482**	**-.392**	**-.425**	**-.419**	**.621**	**-.232**	**.609**	**-.239**	**.668**	**-.324**							
12	Pricing (Satisfaction)	1.336	.969	**.690**	**.590**	**.631**	**.620**	**-.204**	**.670**	**-.228**	**.705**	**-.250**	**.744**	**-.366**						
13	Involvement	3.555	1.370	**.319**	**.259**	**.284**	**.282**	**-.034**	**.355**	**-.047**	**.382**	**-.037**	**.352**	**-.055**	**.395**					
14	Tenure	2.375	.950	.024	.026	.026	**.035**	.003	.015	-.003	.013	-.021	**.045**	-.022	.026	-.006				
15	Nonmanufacturing Supplies	.233	.423	.002	-.005	.004	.010	.001	**-.065**	-.004	**-.057**	-.014	.010	-.024	-.017	**-.051**	-.019			
16	Manufacturing Services	.073	.260	.001	-.002	.011	.009	-.003	**.042**	-.009	**.070**	.021	-.003	.002	**.039**	**.116**	-.023	**-.154**		
17	Nonmanufacturing Services	.175	.380	**-.068**	**-.089**	**-.079**	**-.083**	.018	**-.073**	.008	**-.078**	.019	**-.108**	**.035**	**-.074**	**-.088**	-.009	**-.254**	**-.129**	
18	Other Sectors	.093	.291	**-.083**	**-.085**	**-.077**	**-.092**	**.032**	**-.080**	**.038**	**-.093**	**.043**	**-.086**	**.043**	**-.101**	**-.177**	.030	**-.177**	**-.090**	**-.148**

N = 3,915

Note: Correlations significant at $p < .05$ are in **bold**.

TABLE 6
Study 1: Asymmetric Association between Attribute Satisfaction, Overall Satisfaction, and Behavioral Intentions

	Overall Satisfaction		Future Use		Recommend		PWOM	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Safety (Dissatisfaction)	-.138**	.059						
Safety (Satisfaction)	.130***	.017						
CSR (Dissatisfaction)	-.399***	.053						
CSR (Satisfaction)	.165***	.017						
Quality (Dissatisfaction)	-.063	.039						
Quality (Satisfaction)	.525***	.019						
Pricing (Dissatisfaction)	-.392***	.036						
Pricing (Satisfaction)	.165***	.019						
Overall satisfaction			.855***	.012	.937***	.012	.930***	.012
Involvement	.021**	.009	-.010	.011	.011	.011	.005	.011
Tenure	-.006	.011	.008	.015	.009	.015	.021	.014
Nonmanufacturing supplies	.045	.028	-.083**	.036	-.010	.036	-.009	.035
Manufacturing services	-.073*	.043	-.072	.056	.025	.056	.009	.055
Nonmanufacturing services	.052*	.031	-.162***	.040	-.078*	.040	-.103***	.039
Other sectors	.030	.040	-.144***	.051	-.041	.052	-.119**	.051
Intercept	4.103***	.046	1.081***	.079	.307***	.080	.424***	.078
R^2	.694		.530		.575		.584	

*** $p < .01$, ** $p < .05$, * $p < .10$
N = 3,915

TABLE 7
Study 1: Additional Tests in the SUR Model

A. Correlation Between the Residuals of the Equations

	Overall Satisfaction	Future Use	Recommend
Overall satisfaction			
Future use	**-.231**		
Recommend	**-.246**	**.484**	
PWOM	**-.244**	**.413**	**.581**

Note: Correlations significant at $p < .05$ are in **bold**.
Breusch-Pagan test of independence: $\chi^2(6) = 3{,}584.334$***

B. Test of Asymmetry

Dimension	$\chi^2(1)$
Safety	.017
CSR	16.065 ***
Quality	90.376 ***
Pricing	25.269 ***

*** $p < .01$, ** $p < .05$, * $p < .10$
Note: H_0: $|\beta_{Dissatisfaction}| = |\beta_{Satisfaction}|$

TABLE 8
Study 2: Summary Statistics and Correlations

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	Overall satisfaction	5.600	1.083																									
2	Future use	5.855	1.105	**.671**																								
3	Recommend	5.631	1.212	**.738**	**.720**																							
4	PWOM	5.686	1.203	**.745**	**.713**	**.821**																						
5	Ln(Sales)	8.984	1.448	**.124**	**.084**	**.098**	**.121**																					
6	Gross margin	6,374.141	7,815.690	**.112**	**.061**	**.102**	**.115**	**.686**																				
7	Tobin's q	1.716	1.185	.036	.016	.030	.024	.029	**.203**																			
8	Safety (Dissatisfaction)	.029	.242	**-.280**	**-.258**	**-.192**	**-.178**	.010	.014	.006																		
9	Safety (Satisfaction)	1.627	1.052	**.632**	**.522**	**.551**	**.563**	**.111**	**.114**	**.058**	**-.186**																	
10	CSR (Dissatisfaction)	.045	.271	**-.323**	**-.257**	**-.239**	**-.249**	-.031	-.017	.016	**.544**	**-.172**																
11	CSR (Satisfaction)	1.418	1.056	**.634**	**.494**	**.567**	**.570**	**.156**	**.165**	**.050**	**-.117**	**.677**	**-.225**															
12	Quality (Dissatisfaction)	.074	.376	**-.338**	**-.284**	**-.278**	**-.288**	-.016	.007	-.000	**.402**	**-.146**	**.338**	**-.126**														
13	Quality (Satisfaction)	1.705	.915	**.720**	**.601**	**.638**	**.643**	**.102**	**.111**	**.047**	**-.174**	**.591**	**-.204**	**.578**	**-.366**													
14	Pricing (Dissatisfaction)	.074	.364	**-.405**	**-.315**	**-.322**	**-.342**	-.022	.011	-.015	**.473**	**-.190**	**.405**	**-.182**	**.580**	**-.306**												
15	Pricing (Satisfaction)	1.522	.978	**.686**	**.551**	**.625**	**.619**	**.101**	**.110**	**.052**	**-.137**	**.614**	**-.178**	**.641**	**-.208**	**.718**	**-.316**											
16	Involvement	3.594	1.312	**.279**	**.185**	**.245**	**.228**	**.138**	**.217**	**.105**	-.029	**.329**	**-.049**	**.322**	**-.046**	**.292**	-.029	**.331**										
17	Tenure	2.392	.957	.040	**.053**	**.050**	.036	-.037	-.005	-.029	-.031	.039	**-.051**	.018	-.017	**.041**	-.014	.016	.005									
18	Nonmanufacturing supplies	.290	.454	.012	**.049**	**.044**	**.045**	**-.171**	**-.251**	**-.153**	-.027	**-.049**	.023	-.036	-.039	.007	**-.043**	.026	**-.084**	**-.075**								
19	Manufacturing services	.055	.229	.022	-.001	.028	**.053**	**.087**	**.106**	.017	-.014	**.044**	-.013	**.066**	-.023	.022	-.019	.030	**.104**	-.005	**-.155**							
20	Nonmanufacturing services	.217	.412	**-.057**	**-.073**	**-.091**	**-.075**	**.126**	**.225**	.030	-.017	-.011	-.013	-.017	.035	**-.054**	.030	**-.094**	.035	.023	**-.336**	**-.127**						
21	Other sectors	.079	.270	-.024	-.001	-.005	-.010	-.010	-.035	.005	.029	-.010	.003	-.033	.029	-.023	.039	-.035	**-.126**	**.066**	**-.187**	**-.071**	**-.154**					
22	Lagged total assets	74,170.600	91,778.790	**.078**	.037	**.078**	**.095**	**.606**	**.827**	-.035	.018	**.112**	.002	**.138**	.019	**.083**	.027	**.056**	**.193**	.024	**-.304**	**.101**	**.309**	-.017				
23	Lagged financial leverage	.252	.170	-.006	-.017	-.004	-.020	**-.138**	.033	**.337**	-.007	**.065**	.023	.022	.005	.023	.023	.003	.017	.027	**-.179**	.016	.019	**.101**	**.066**			
24	Lagged liquidity	1.743	1.151	-.023	-.008	-.015	-.016	**-.203**	-.017	**.093**	.023	-.015	.013	-.016	.015	**-.050**	**.041**	-.028	.033	.027	**-.080**	-.004	**.085**	-.007	-.017	**-.217**		
25	Lagged industry concentration	.112	.110	**.066**	**.075**	**.079**	**.070**	**.106**	.035	**.274**	.002	**.049**	-.003	**.047**	-.021	.038	-.031	**.072**	.024	-.034	**.111**	.012	**-.156**	.015	**-.163**	-.001	**-.066**	
26	Lagged industry instability	1.027	.022	.015	.008	.007	.006	**.049**	**.144**	**.269**	.001	**.077**	.023	.038	-.009	.027	.006	.023	.030	-.032	**-.107**	-.006	.008	**.051**	**.204**	**.254**	**-.113**	**.121**

N = 2,380

Note: Correlations significant at $p < .05$ are in **bold**.

TABLE 9
Study 2: Asymmetric Association Between Attribute Satisfaction, Overall Satisfaction, Behavioral Intentions, and Financial Performance (SUR)

	Overall Satisfaction		Future Use		Recommend		PWOM		Ln(Sales)		Gross Margin[a]		Tobin's Q	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Safety (Dissatisfaction)	-.141**	.066												
Safety (Satisfaction)	.177***	.017												
CSR (Dissatisfaction)	-.310***	.057												
CSR (Satisfaction)	.178***	.018												
Quality (Dissatisfaction)	-.069	.043												
Quality (Satisfaction)	.397***	.022												
Pricing (Dissatisfaction)	-.359***	.046												
Pricing (Satisfaction)	.197***	.021												
Overall satisfaction			.782***	.016	.907***	.016	.922***	.016	.076***	.019	.288***	.079	.048**	.019
Involvement	.004	.011	-.018	.013	.022	.013	-.002	.013						
Tenure	.006	.014	.029*	.018	.023	.017	.007	.017						
Nonmanufacturing supplies	.022	.032	.086**	.042	.086**	.042	.117***	.041	-.247***	.054	-.494**	.220	-.316***	.054
Manufacturing services	-.070	.059	-.055	.077	.057	.076	.223***	.075	.016	.096	.216	.390	.002	.095
Nonmanufacturing services	-.034	.035	-.044	.046	-.092**	.045	-.013	.045	-.142**	.059	-.446*	.240	.091	.059
Other sectors	.012	.051	.067	.066	.084	.066	.087	.065	.022	.082	-.770**	.334	-.253***	.082
Lagged total assets									.000***	.000	.000***	.000	.000***	.000
Lagged financial leverage									-1.905***	.132	-.581	.537	2.230***	.131
Lagged liquidity									-.300***	.019	.016	.077	.194***	.019
Lagged industry concentration									2.713***	.196	12.744***	.798	2.850***	.195
Lagged industry instability									-5.988***	1.031	-19.353***	4.206	10.173***	1.027
Intercept	4.106***	.056	1.451***	.102	.403***	.102	.464***	.100	14.737***	1.057	18.161***	4.310	-10.028***	1.053
R^2	.665		.445		.542		.551		.508		.719		.271	

[a] Coefficients for gross margin are scaled by 1,000.
*** $p < .01$, ** $p < .05$, * $p < .10$
N = 2,380

TABLE 10
Study 2: Additional Tests in the SUR Model

A. Correlation Between the Residuals of the Equations

	Overall Satisfaction	Future Use	Recommend	PWOM	Ln(Sales)	Gross Margin
Overall satisfaction						
Future use	**-.221**					
Recommend	**-.219**	**.447**				
PWOM	**-.230**	**.431**	**.601**			
Log(Sales)	-.012	.012	-.025	-.004		
Gross margin	-.026	-.014	-.015	-.014	**.373**	
Tobin's Q	-.025	-.012	.003	.010	**.174**	**.436**

Note: Correlations significant at $p < .05$ are in **bold**.
Breusch-Pagan test of independence: $\chi^2(15) = 2{,}996.633$***

B. Test of Asymmetry

Dimension	$\chi^2(1)$
Safety	.261
CSR	4.500 **
Quality	36.781 ***
Pricing	8.831 ***

*** $p < .01$, ** $p < .05$, * $p < .10$
Note: H_0: $|\beta_{Dissatisfaction}| = |\beta_{Satisfaction}|$

Web Appendix A
Study 2: Asymmetric Association Between Attribute Satisfaction, Overall Satisfaction, Behavioral Intentions, and Financial Performance (SUR with Industry Fixed-Effects)

	Overall Satisfaction		Future Use		Recommend		PWOM		Ln(Sales)		Gross Margin[a]		Tobin's Q	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Safety (Dissatisfaction)	-.139 **	.066												
Safety (Satisfaction)	.177 ***	.017												
CSR (Dissatisfaction)	-.311 ***	.057												
CSR (Satisfaction)	.178 ***	.018												
Quality (Dissatisfaction)	-.070	.043												
Quality (Satisfaction)	.397 ***	.022												
Pricing (Dissatisfaction)	-.359 ***	.046												
Pricing (Satisfaction)	.197 ***	.021												
Overall Satisfaction			.782 ***	.016	.907 ***	.016	.921 ***	.016	.039 **	.017	.153 **	.060	.029 *	.016
Involvement	.004	.011	-.018	.013	.022 *	.013	-.002	.013						
Tenure	.008	.014	.029 *	.018	.024	.017	.008	.017						
Nonmanufacturing Supplies	.022	.032	.086 **	.042	.086 **	.042	.117 ***	.041	-.377 ***	.051	-.576 ***	.177	-.243 ***	.048
Manufacturing Services	-.069	.059	-.055	.077	.057	.076	.222 ***	.075	-.038	.086	.087	.298	-.101	.080
Nonmanufacturing Services	-.034	.035	-.044	.046	-.092 **	.045	-.013	.045	-.029	.057	-.056	.199	.013	.054
Other Sectors	.012	.051	.067	.066	.084	.066	.087	.065	.122	.075	-.176	.262	-.121 *	.070
Lagged total assets									.000 ***	.000	.000 ***	.000	.000	.000
Lagged financial leverage									-1.687 ***	.128	1.329 ***	.443	1.963 ***	.119
Lagged liquidity									-.284 ***	.018	.027	.062	.116 ***	.017
Lagged industry concentration									.051	.434	-10.267 ***	1.504	1.065 ***	.405
Lagged industry instability									-11.657	8.355	209.259 ***	28.951	2.806	7.792
Intercept	4.104 ***	.056	1.450 ***	.102	.400 ***	.102	.463 ***	.100	19.179 **	8.704	-219.292 ***	3.160	-3.481	8.118
R^2	.665		.445		.542		.551		.619		.843		.506	

[a] Coefficients for gross margin are scaled by 1,000.
*** $p < .01$, ** $p < .05$, * $p < .10$
N = 2,380

Web Appendix B
Study 2: Test of Asymmetry

Dimension	χ^2 (1)
Safety	.284
CSR	4.567 **
Quality	36.714 ***
Pricing	8.821 ***

*** $p < .01$, ** $p < .05$, * $p < .10$

Note: H_0: $|\beta_{Dissatisfaction}| = |\beta_{Satisfaction}|$

Web Appendix C
Study 2: Auxiliary Regressions for the Potential Endogenous Variables

A. Safety and CSR

	Safety				CSR			
	Dissatisfaction		Satisfaction		Dissatisfaction		Satisfaction	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Industry average safety (Dissatisfaction)	.994***	.096						
Industry average safety (Satisfaction)			.807***	.110				
Industry average CSR (Dissatisfaction)					.986***	.110		
Industry average CSR (Satisfaction)							.791***	.102
Involvement	-.005	.004	.253***	.016	-.008*	.004	.240***	.016
Tenure	-.009*	.005	.039*	.021	-.014**	.006	.021	.021
Nonmanufacturing supplies	-.021*	.012	.009	.051	.004	.014	.012	.051
Manufacturing services	-.021	.022	-.001	.092	-.008	.025	.082	.093
Nonmanufacturing services	-.017	.013	-.080	.055	-.006	.015	-.112**	.055
Other sectors	.006	.019	.080	.080	.000	.022	.013	.080
Intercept	.048**	.020	-.681***	.195	.061***	.024	-.603***	.163
R^2	.047		.131		.038		.128	
F	16.740***		51.177***		13.334***		49.546***	

B. Quality and Pricing

	Quality				Pricing			
	Dissatisfaction		Satisfaction		Dissatisfaction		Satisfaction	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Industry average safety (Dissatisfaction)	.994***	.114						
Industry average safety (Satisfaction)			.843***	.111				
Industry average CSR (Dissatisfaction)					.995***	.127		
Industry average CSR (Satisfaction)							.847***	.092
Involvement	-.014**	.006	.198***	.014	-.009	.006	.241***	.014
Tenure	-.008	.008	.042**	.019	-.008	.008	.028	.019
Nonmanufacturing supplies	-.023	.019	.044	.044	-.027	.018	.022	.046
Manufacturing services	-.042	.035	-.070	.081	-.037	.034	-.083	.085
Nonmanufacturing services	.002	.021	-.113**	.048	-.006	.020	-.209***	.050
Other sectors	.017	.030	.032	.070	.027	.029	-.014	.073
Intercept	.079**	.033	-.532***	.201	.062**	.032	-.655***	.159
R^2	.036		.113		.030		.152	
F	12.819***		43.233***		10.421***		60.800***	

*** $p < .01$, ** $p < .05$, * $p < .10$; N = 2,380

Web Appendix D
Study 2: Asymmetric Association Between Attribute Satisfaction, Overall Satisfaction, Behavioral Intentions, and Financial Performance (SUR with Control Function)

	Overall Satisfaction		Future Use		Recommend		PWOM		Ln(Sales)		Gross Margin[a]		Tobin's Q	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Safety (Dissatisfaction)	-.146	.122												
Safety (Satisfaction)	.182***	.021												
CSR (Dissatisfaction)	-.301***	.101												
CSR (Satisfaction)	.178***	.020												
Quality (Dissatisfaction)	-.078	.095												
Quality (Satisfaction)	.395***	.026												
Pricing (Dissatisfaction)	-1.228***	.236												
Pricing (Satisfaction)	.194***	.023												
Overall satisfaction			.784***	.025	.908***	.026	.922***	.027	.082***	.020	.291***	.094	.045**	.022
Control Function for Pricing (Satisfaction)	.984***	.247												
Involvement	-.003	.011	-.018	.015	.021	.014	-.002	.013						
Tenure	.000	.015	.029	.019	.023	.019	.007	.018						
Nonmanufacturing supplies	-.003	.038	.086**	.041	.086**	.043	.117***	.041	-.247***	.075	-.493**	.215	-.315***	.059
Manufacturing services	-.093	.059	-.054	.064	.057	.080	.223***	.071	.016	.097	.215	.539	.002	.098
Nonmanufacturing services	-.017	.038	-.044	.046	-.092**	.045	-.013	.044	-.141**	.060	-.447*	.265	.090	.061
Other sectors	.050	.058	.067	.074	.084	.070	.087	.072	.023	.094	-.770***	.295	-.254***	.079
Lagged total assets									.000***	.000	.000***	.000	.000***	.000
Lagged financial leverage									-1.906***	.715	-.579*	.351	2.231***	.323
Lagged liquidity									-.300***	.035	.015	.073	.194***	.029
Lagged industry concentration									2.711***	.237	12.725***	1.355	2.847***	.194
Lagged industry instability									-5.999***	1.549	-19.363***	3.864	10.179***	1.393
Intercept	4.214***	.070	1.443***	.139	.400***	.138	.463***	.144	14.720***	1.460	18.152***	3.946	-10.017***	1.402
R^2	.666		.445		.542		.551		.508		.719		.271	

[a] Coefficients for gross margin are scaled by 1,000.
*** $p < .01$, ** $p < .05$, * $p < .10$
N = 2,380

Web Appendix E
Study 2: Test of Asymmetry

Dimension	χ^2 (1)
Safety	.079
CSR	1.348
Quality	9.369 ***
Pricing	18.719 ***

*** $p < .01$, ** $p < .05$, * $p < .10$

Note: H_0: $|\beta_{Dissatisfaction}| = |\beta_{Satisfaction}|$