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Customer satisfaction and its impact on the future costs of selling

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Abstract

Although scholars have established that customer satisfaction affects different dimensions of firm financial performance, a managerially important but overlooked aspect is its effect on a firm's future cost of selling (COS), that is, expenditures associated with persuading customers and providing convenience to them. Accordingly, this study presents the first empirical and theoretical examination of the impact of customer satisfaction on future COS. The authors propose that while higher customer satisfaction can lower future COS, the degree to which a firm realizes this benefit depends on its strategy and operating environment. Analyzing almost two decades of data from 128 firms, the authors find that customer satisfaction has a statistically and economically significant negative effect on future COS. While the negative effect of customer satisfaction on future COS is weaker for firms with higher capital intensity and financial leverage, this effect is stronger for more diversified firms and for firms operating in industries with higher growth and labor intensity. The authors also find that these effects may vary across two components of COS, cost of persuasion and convenience.

Keywords

capital structure, cost of selling, customer satisfaction, diversification, leverage, marketing–finance interface, strategic flexibility, strategic intent

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Popular wisdom suggests that customer satisfaction relates to the top and bottom line (i.e., gross sales and net profits of firms; e.g., Erickson 2018). Accordingly, an impressive body of empirical research has examined the effect of customer satisfaction on measures of financial performance as reflected in stock market–based measures such as stock returns and risk (e.g., Fornell, Morgeson, and Hult 2016; Mittal et al. 2005) and operational measures such as market share, profitability, and cash flows (e.g., Anderson, Fornell, and Lehmann 1994; Gruca and Rego 2005). Although a firm derives its net profits from the generation of sales after accounting for the associated costs, the relationship between customer satisfaction and costs remains largely unexamined. Investigating the impact of customer satisfaction on cost-based measures is important because aggregate profit-based metrics might not capture the true effect of customer satisfaction on costs (see Boulding and Christen 2008).

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Of particular salience to marketing managers is the cost of selling (COS); that is, the expenditures incurred by a firm to persuade customers to purchase its offerings and make it convenient for customers to do so. Firms often incur substantial costs related to persuading customers to purchase, such as sales commissions and marketing and advertising expenses. Firms also incur significant costs in trying to make purchases convenient for customers by absorbing freight-out costs and providing convenient or generous payment options that can result in bad debt expenses if customers default on payments (e.g., Marriott, Edwards, and Mellett 2002; Otto, Szymanski, and Varadarajan 2019). Indeed, marketing managers are constantly under pressure to look for marketing initiatives that produce the desired product-market outcomes at lower costs (e.g., Katsikeas et al. 2016). The COS is also closely tracked by investors and analysts, as a reduction in COS is generally viewed as a positive signal in financial markets (see Gupta, Pevzner, and Seethamraju 2010). For example, Qualcomm enjoyed a surge in its stock price after it informed investors that it had been successful at reducing its selling-related expenditures (Forbes Trefis Team 2016). Similarly, when Best Buy pledged to continue to further reduce its selling-related expenses in 2014, analysts provided a positive forecast for its stock price (Forbes Trefis Team 2014).

Prior research has suggested that customer satisfaction is a market-based asset that can potentially reduce a firm's future COS by increasing customer retention and loyalty and by generating positive word of mouth and higher willingness to pay (e.g., Luo and Homburg 2007). However, how this effect of customer satisfaction on future COS varies across firm and industry factors remains conceptually and empirically unclear. As such, we focus on the impact of customer satisfaction on future COS and the contingencies that influence this relationship to make two key contributions.

First, drawing on almost two decades of data comprising 1,207 observations from 128 firms, we present the first empirical examination of the impact of customer satisfaction on future COS. As such, we respond to recent calls by Katsikeas et al. (2016) to study the effect of marketing actions on the costs incurred by a firm. Combining a text-analysis tool with data from COMPUSTAT and 10-K reports, we present a novel approach to measure COS by isolating the "selling" component of the firm's selling, general, and administrative expenses (SG&A). Consistent with our expectations, we find that customer satisfaction has a statistically and economically significant negative impact on future COS. Specifically, for an average firm in our sample, a 1-point increase in customer satisfaction, as measured on a 100-point scale of the American Customer Satisfaction Index (ACSI), corresponds to a decrease of almost US$130 million in future COS.[1] This amount is equivalent to nearly 3% of the average COS in our sample. This finding, therefore, is of direct importance for chief executive officers (CEOs) because cost reduction is their topmost concern (PwC 2018).

Second, we develop a contingency framework that outlines the conditions that moderate the impact of customer satisfaction on future COS. Drawing on prior research (e.g., Morgan, Anderson, and Mittal 2005), we propose that a firm's strategic focus and flexibility and its operating environment are likely to influence the extent to which customer satisfaction lowers future COS. Underscoring the importance of strategic focus, results show that the negative effect of customer satisfaction on future COS strengthens as diversification of firms increases. Consistent with our expectations about the moderating effects of strategic flexibility, we find that the negative effect of customer satisfaction on future COS weakens as capital intensity and financial leverage increase. Results also bring to fore the impact of operating environment, as we find that the negative effect of customer satisfaction on future COS strengthens as industry growth and labor intensity increase.

We complement our focal analysis with a post hoc exploration of the effect of customer satisfaction on two components of COS: cost of persuasion and cost of convenience. We find that cost of persuasion seems to drive the effect of customer satisfaction on future COS, as the effect of customer satisfaction on the future cost of convenience is substantially smaller in magnitude than its effect on the future cost of persuasion. In addition, the moderating effects of firm strategy and operating environment predominantly manifest in the case of customer satisfaction's effect on the future cost of persuasion as opposed to the future cost of convenience. Taken together, results concerning the contingency framework and post hoc exploration provide a nuanced view of the impact of customer satisfaction on future COS.

Cost of Selling

Cost of selling refers to the costs incurred by a firm in persuading customers to purchase its offerings and in making it convenient for them to do so.[2] Typically, to persuade a customer, a firm implements activities aimed at providing information and developing product/service perceptions (see Galbraith 1967). Such activities include engaging sales personnel to serve as product/service experts to customers, implementing a marketing plan to enhance brand image, or purchasing banner

[1] To derive the dollar value of the estimated effect, we multiply the estimated effect by the average sales of the firms in our sample (for a similar approach, see Gruca and Rego [2005]). In line with this computation, the dollar value of the estimated effect represents the approximate monetary size of the effect for an average firm (in terms of size) in our sample, as we use sales as a measure of firm size. This computation applies to all dollar values of the estimated effects that we discuss.

[2] This conceptualization of COS is consistent with Bronnenberg (2015, p. 481), in which he argues that a firm's selling costs can comprise the costs associated with both the provision of convenience and persuasion.

advertisements to promote a new product/service. Selling also involves activities that make it easier for customers to purchase a firm's offerings (e.g., Berry, Seiders, and Grewal 2002; Bronnenberg 2015). For example, firms offer delivery services to customers to reduce the time and effort required for them to travel to a store or offer ancillary services such as providing flexible payment terms.

We draw on prior research (e.g., Im, Grover, and Teng 2013; Lee et al. 2015) and derive a firm's COS from its SG&A. Specifically, SG&A comprises 16 expense items (COMPUSTAT Online Help Manual SG&A 2017). According to the Generally Accepted Accounting Principles, SG&A can be separated into selling expenses and general and administrative expenses (Im, Grover, and Teng 2013). Of the 16 expenses that constitute SG&A, we consider the following 5 to make up COS: commissions, marketing expense, advertising expense, freight-out expense, and bad debt expense (Lee et al. 2015).

Firms typically pay commissions to sales personnel and channel partners for successfully converting a prospective customer. Firms also incur marketing and advertising expenses when building brand awareness, promoting a product, or introducing a new one. These activities are aimed at influencing customers' understanding and perceptions of the firm's offerings (e.g., Thompson and Malaviya 2013). As such, we view commissions, marketing expenses, and advertising expenses as the costs of persuading customers and, therefore, consider them part of COS.

Costs related to freight-out and bad debt expenses reflect costs incurred to make it convenient for customers to purchase a firm's offerings. Freight-out expense is the transportation cost that the firm incurs when it delivers products/services to customers (Weygandt, Kimmel, and Kieso 2009). Thus, a firm incurs freight-out expense if it provides delivery services to customers to reduce the time and effort required to purchase its offerings. Bad debt expense reflects the loss that the firm incurs when customers renege on payments for products/services they bought (Marriott, Edwards, and Mellett 2002). Firms, therefore, run the risk of incurring bad debt expense if they offer customers the flexibility to pay later or in installments. As such, we consider both freight-out and bad debt expenses as part of COS.

It is important to note that COS is distinct from cost-related concepts such as SG&A, cost of goods sold (COGS), and operating expenses (OPEX). Rather, COS is a subset of SG&A that is an aggregated metric comprising 16 distinct expense items. While COS reflects the costs related to selling a firm's offerings, COGS comprises costs incurred by a firm in the production of its offerings (COMPUSTAT Online Help Manual COGS 2019).[3] Finally, COS is also a subset of OPEX, which is the sum of COGS and SG&A (COMPUSTAT Online Help Manual Operating Expense OPEX 2018). We illustrate the relationships between COS and these cost-related concepts in Figure 1 and Table A1 of Web Appendix A.

Conceptual Framework and Hypotheses

Drawing on the extant literature (Luo and Homburg 2007; Seiders et al. 2005), we propose that customer satisfaction should lower future COS by reducing the potential expenses in persuading customers and offering convenience. Importantly, the extent of this effect should be a function of the firm's strategy and its operating environment (see Figure 2).

A firm's strategy reflects the fundamental organizational sources of competitive advantage that address two key issues (Hamel and Prahalad 1994): (1) what firms want and (2) what firms have. The question of "what firms want" brings the issue of strategic focus (or intent) to the forefront (Hamel and Prahalad 1994). The question of "what firms have" brings organizational resources to the forefront (Wernerfelt 1984), where we examine organizational strategic flexibility, a polymorphous construct that assesses malleable firm resources that can easily take on different forms based on organizational contexts and needs (Grewal and Tansuhaj 2001). A firm's operating environment is an indicator of the customer's perspective because it reflects the nature of the preferences and expectations of its current and potential customers (Morgan, Anderson, and Mittal 2005). In this way, the moderating impact of a firm's operating environment demonstrates the effectiveness of the firm in benefiting from customer satisfaction to lower future COS.

[3] According to COMPUSTAT, typical expenses contained in COGS include maintenance and repairs, rent and royalty, salary expenses, lease expenses, and supplies (see COMPUSTAT Online Help Manual COGS 2019). Depending on firm and/or industry, COGS is also termed "cost of revenues" (e.g., Yahoo Inc.) or "cost of sales" (e.g., Wal-Mart Stores Inc.)

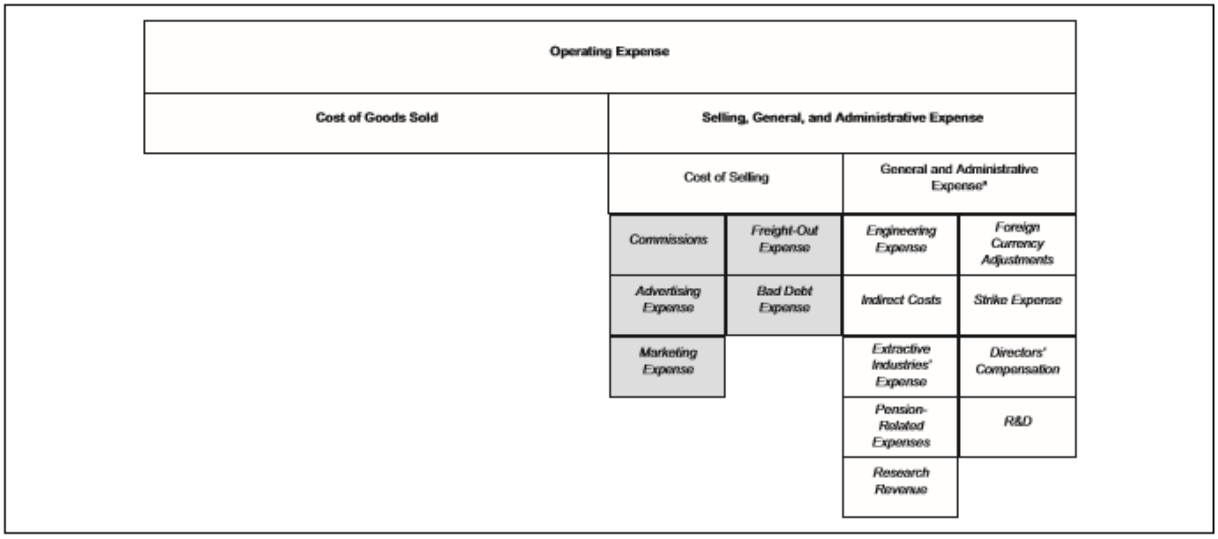

Figure 1. Comparing cost of selling with other cost-related concepts.
[a]The expense items listed under General and Administrative Expense comprise only the expense items that are relevant to our research context (for a more detailed discussion, see Table 1).

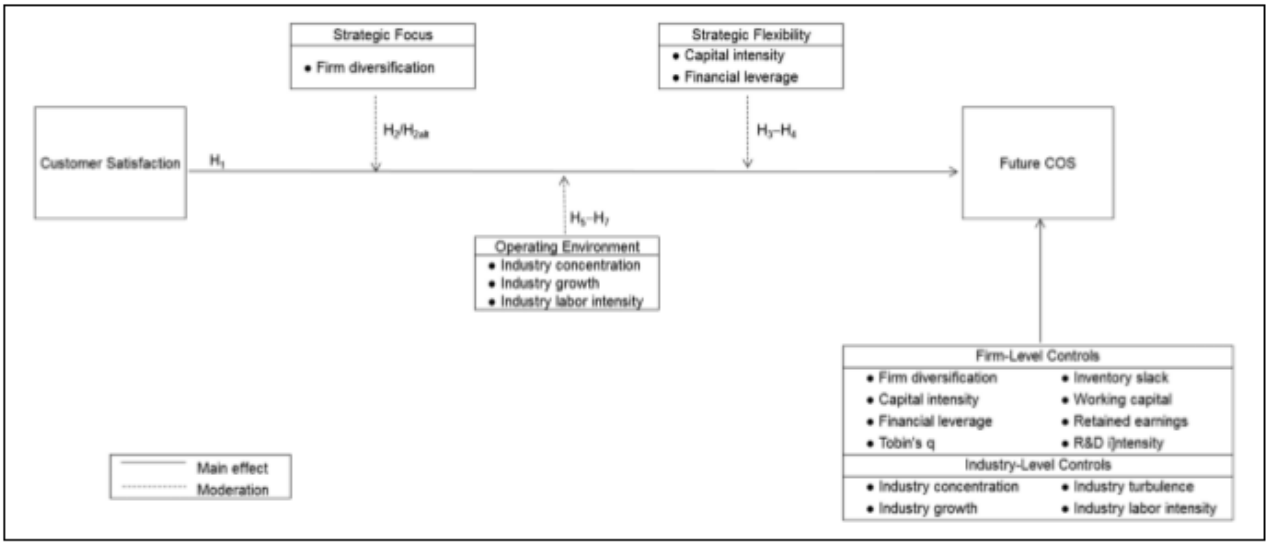

Figure 2. Impact of customer satisfaction on future COS.

Impact of Customer Satisfaction on Future COS

Customer satisfaction refers to customers' postconsumption comparison of their expectations and perceptions of performance of a product or service (Haumann et al. 2014). Increase in customer satisfaction should lower a firm's future COS because satisfied customers respond in several beneficial ways. First, customer satisfaction enhances customer loyalty intentions and repurchase behaviors (Gustafsson, Johnson, and Roos 2005). Satisfied customers also have lower price sensitivity (Wieseke, Alavi, and Habel 2014) and greater willingness to pay (Homburg, Koschate, and Hoyer 2005). As such, salespeople are likely to find greater success rates in persuading satisfied customers to purchase than unsatisfied customers (Mullins et al. 2014). Therefore, commissions required to incentivize salespeople should reduce as customer satisfaction increase. Second, increase in customer satisfaction signals improvements in the quality of a firm's offerings relative to competitors (Peng et al. 2019); consequently, satisfied customers promote a firm's offerings through positive word of mouth (Luo and Homburg 2007). The quality signal, coupled with the positive word of mouth, should reduce future advertising and marketing expenses needed to persuade customers to purchase (Villanueva, Yoo, and Hanssens 2008).

An increase in customer satisfaction should also lower spending related to providing convenience to customers. Satisfied customers should be more tolerant of inconvenience associated with the consumption of a firm's offerings than unsatisfied customers (Berry, Seiders, and Grewal 2002). In fact, satisfied customers often inconvenience themselves to purchase from a firm they are satisfied with even if competitors' offerings are conveniently available (Seiders et al. 2005).

For example, consider the offers for free shipping often used in promotions to keep prices competitive and generate additional sales (Lewis, Singh, and Fay 2006). As price sensitivity reduces with increase in customer satisfaction (Wieseke, Alavi, and Habel 2014), the attractiveness of competitors' free shipping offers should reduce as satisfaction increases.

Similarly, firms typically offer customers the flexibility to pay later or in installments in hopes that putting off payments to incentivize customers to spend more (Mishra and Mishra 2010). However, as repurchase behaviors increase with customer satisfaction (Gustafsson, Johnson, and Roos 2005), the importance of payments terms should reduce with an increase in satisfaction. As such, higher customer satisfaction should reduce a firm's bad debt expenses, as it need not depend on the provisions of flexible payment terms to generate sales. Taken together, higher customer satisfaction should lower a firm's future COS through reductions in the potential costs that relate to persuading customers and providing convenience to them. Formally,

H_1: As customer satisfaction of a firm increases, its future COS decreases.

Moderating Effect of Firm Strategy

The strategic focus and flexibility of a firm should influence its willingness and ability to benefit from customer satisfaction. First, strategic focus represents the extent to which a firm concentrates its business portfolio on few versus many business sectors (Kim and Finkelstein 2009). As firms expand their operations over many businesses (i.e., increase firm diversification), their strategic focus reduces (Fang, Palmatier, and Steenkamp 2008). Importantly, a firm's strategic focus can serve as either a facilitator or an inhibitor when it examines organizational and operating changes that are required to pursue opportunities related to customers (Wuyts, Rindfleisch, and Citrin 2015). For example, diversified firms may enjoy reputation spillovers across markets that can potentially reduce their need for advertising. Second, strategic flexibility can affect organizational ability to deploy resources to utilize customer satisfaction to lower future COS (Lee and Grewal 2004). Indeed, firms with resource constraints can find it difficult to, for example, exploit the positive word of mouth from satisfied customers to lower their advertising expenses because they lack the flexibility to alter promotional programs. Extant research in marketing and operations suggests that a firm's reliance on capital equipment and its debt burden are crucial indicators of strategic flexibility (Hendricks and Singhal 2001; Modi, Wiles, and Mishra 2015). Therefore, to assess strategic flexibility, we consider two key resource positions: the degree to which a firm employs capital equipment (i.e., capital intensity) and its debt burden (i.e., financial leverage).

Strategic focus. A firm's extent of diversification refers to the breadth of its offerings (Kovach et al. 2015). Existing research in operations and marketing suggests that firms that provide a wider range of products and services can benefit from operational and financial synergies (e.g., Kovach et al. 2015; Varadarajan, Jayachandran, and White 2001). In particular, diversification allows firms to enjoy operational synergies through the transfer of skills and tacit knowledge across multiple businesses (Palepu 1985). Indeed, a core competency of diversified firms is to employ specific knowledge acquired in one business to formulate solutions for problems and capitalize on the favorable circumstances in other businesses (Zahavi and Lavie 2013). This ability to transfer a variety of knowledge across multiple businesses serves as a catalyst in transferring both simple and complex customer knowledge (Gebhardt, Carpenter, and Sherry 2006) across diverse products and services. The gains from sharing customer knowledge should increase as firm diversification increases; this knowledge should enable firms to utilize the benefits of customer satisfaction to reduce their future COS. Put differently, the benefits due to higher customer satisfaction in each business sector—for example, the positive word of mouth and/or the higher quality signals—are likely to spill over to other business sectors, thus allowing diversified firms to lower their future costs required to persuade and offer convenience to customers. Therefore, we expect the following:

H_2: The negative effect of customer satisfaction on future COS is stronger (weaker) for more (less) diversified firms.

In contrast, prior research also suggests that a diverse range of offerings can lead to an increase in operational complexity and therefore lower resource allocation efficiency (Luo and Homburg 2008). Greater diversification can also result in significant constraints on the attention of the top management team (TMT; Varadarajan, Jayachandran, and White 2001), which, in turn, should reduce emphasis on activities that reduce costs. It is also possible that there is little overlap in the customer segments across multiple businesses, which makes it difficult for diversified firms to benefit from customer knowledge transfers. The lack of TMT attention, as well as the inability to benefit from customer knowledge transfers, should lower the likelihood of diversified firms utilizing these benefits. Therefore, we propose an alternative hypothesis:

H_{2alt}: The negative effect of customer satisfaction on future COS is weaker (stronger) for more (less) diversified firms.

Strategic flexibility. Capital intensity reflects the degree to which a firm relies on capital investments such as property, plant, and equipment for its operations (Datta and Rajagopalan 1998). Higher capital intensity, therefore, implies lower strategic flexibility. Capital-intensive firms typically rely on automation but deemphasize reliance on employee specific skills (Hendricks and Singhal 2001). Such firms tend to gain competitive advantage from reducing costs and therefore find opportunities for cost reduction to be attractive (McAlister et al. 2016). However, the benefits from satisfied customers should be less valuable for firms with higher capital intensity. Higher capital intensity means that a firm relies more on tangible signals of the quality of its offerings such as manufacturing plants and physical stores. Attractiveness of intangible signals, such as the positive word of mouth, reduces in the presence of such tangible signals. Thus, although the potential cost savings may provide initial incentives for capital-intensive firms to leverage customer satisfaction to lower future COS, the reduced salience of these benefits is likely to negate these motivations.

As employees enable benefits from satisfied customers (e.g., Hendricks and Singhal 2001; Wuyts, Rindfleisch, and Citrin 2015), even capital-intensive firms with higher customer satisfaction should lack the capability to use customer satisfaction to lower future COS. In fact, due to reliance on automation in capital-intensive firms, their desire to benefit from satisfied customers would require substantial transition of existing routines, such as retraining their workforce (e.g., Hendricks and Singhal 2001; Modi, Wiles, and Mishra 2015). Because capitalintensive firms have high fixed costs and low variable costs (e.g., Li et al. 2015), their motivation to undertake revision to routines that might raise variable costs should be low (Datta and Rajagopalan 1998). Thus, we expect the impact of customer satisfaction on future COS to weaken as capital intensity increases because of scarce strategic flexibility to utilize customer satisfaction.

H_3: The negative effect of customer satisfaction on future COS is weaker (stronger) for firms with higher (lower) capital intensity.

Financial leverage reflects the degree of debt that a firm has relative to its total assets (Modi, Wiles, and Mishra 2015). As debt increases with an increase in financial leverage, financial flexibility declines because the accumulation of debt restricts the availability of uncommitted cash flows (Phillips and Sertsios 2013). The constraints on financial flexibility arise because leveraged firms devote a substantial amount of cash flows toward fulfillment of interest payments (Malshe and Agarwal 2015). Lower financial flexibility creates incentives to reduce costs and therefore should motivate leveraged firms to realize the benefits of customer satisfaction to lower future COS (Almeida, Campello, and Weisbach 2011). However, lack of financial flexibility also limits the capacity to pursue customer-related opportunities (Malshe and Agarwal 2015). Furthermore, because customers are typically concerned about the quality of offerings (Maksimovic and Titman 1991), it is unlikely for leveraged firms to derive benefits from customer satisfaction to lower future COS. Indeed, prior research has suggested that an increase in financial leverage lowers the likelihood of customers making specific investments with suppliers (Kale and Shahrur 2007).

In summary, we expect an increase in financial leverage to weaken the negative impact of customer satisfaction on future COS despite the predisposition of leveraged firms to engage in cost-reduction activities. This weakening arises because financial leverage should not only reduce a firm's financial flexibility to utilize the benefits of customer satisfaction but should also lower customers' perceptions of the quality of the firm's offerings. More formally,

H_4: The negative effect of customer satisfaction on future COS is weaker (stronger) for firms with higher (lower) financial leverage.

Moderating Effect of Operating Environment

A firm's operating environment provides information about the nature of the preferences and expectations of its current and potential customers and, therefore, should affect the impact of customer satisfaction on future COS (e.g., Homburg, Vollmayr, and Hahn 2014; Morgan, Anderson, and Mittal 2005). We draw on prior work to identify three industry conditions in a firm's operating environment that reflect competitive pressures, growth prospects, and labor intensity in managing customers. First, reflecting the centrality of competitive conditions for COS, we examine the moderating effect of industry concentration (Luo and Homburg 2007; Malshe and Agarwal 2015). Second, consistent with the logic that COS should be a critical consideration in growth markets (Aaker and Day 1986), we examine the moderating effect of industry growth. Third, consistent with prior work that emphasizes the pivotal role of labor intensity for customer satisfaction, we consider the moderating effect of industry labor intensity (Dotzel, Shankar, and Berry 2013).

Industry concentration. Industry concentration captures the degree of competition in an industry such that as industry concentration decreases, competitive intensity increases, and as a result, customers have more options to choose from (Fang, Palmatier, and Grewal 2011). With the increase in options, customers are more likely to consider competing firms as substitutes and thus have lower loyalty and higher price sensitivity, which should make it difficult to retain even highly satisfied customers (Luo and Homburg 2007; Malshe and Agarwal 2015). As such, the efficacy of the benefits of higher customer satisfaction in

lowering future COS should weaken as industry concentration decreases because the options available to customers increase. Conversely, the decrease in the number of options as industry concentration increases makes it difficult even for dissatisfied customers to discontinue their relationships with the firm (Luo and Homburg 2007). Formally,

H_5: The negative effect of customer satisfaction on future COS is weaker (stronger) for firms operating in industries with lower (higher) concentration.

Industry growth. The rate of growth in demand in an industry (i.e., industry growth) plays an integral role in strategic marketing models (Homburg, Vollmayr, and Hahn 2014). Findings from existing research suggest that salience of the benefits of customer satisfaction (i.e., positive word of mouth and lower price sensitivity) should increase with industry growth because customers' reliance on word-of-mouth communication increases due to reduced availability of alternative options (You, Vadakkepatt, and Joshi 2015). Indeed, criticality of word-of-mouth communication should increase with industry growth due to the presence of a new and diverse base of customers in such industries (see Johnson and Selnes 2004)—that is, customers unfamiliar with firms' offerings.

Prior research also suggests that price elasticity increases with industry growth (Bijmolt, Van Heerde, and Pieters 2005) as competing firms are willing to make costly investments—such as pricing below their costs—to capture greater market share (Aaker and Day 1986). In this way, customers' lower price sensitivity resulting from higher customer satisfaction is also more critical in growth industries because customers who are satisfied with the firm's offerings are unlikely to be swayed by its competitors' tactics because they tend to have a higher willingness to pay (Homburg, Koschate, and Hoyer 2005). Thus, the negative impact of customer satisfaction on future COS should be stronger in growth industries because the cost-reducing benefits of higher customer satisfaction (free word of mouth, less price-induced switching) are more relevant in such industries. Formally,

H_6: The negative effect of customer satisfaction on future COS is stronger (weaker) for firms operating in industries with higher (lower) growth.

Industry labor intensity. Industry labor intensity reflects the extent to which firms in an industry are reliant on employees to produce and deliver products and services (Dotzel, Shankar, and Berry 2013). In labor-intensive industries, customers should find it difficult to compare competing offerings due to heterogeneity in offerings that reliance on labor creates (Dotzel, Shankar, and Berry 2013). This difficulty in comparing competing offerings should make customers loyal (Palmatier et al. 2006). Furthermore, customers' uncertainty in evaluating a firm's offerings increases with an increase in labor intensity as the intangible nature of offerings should increase their perceived consumption risks (Fang, Palmatier, and Steenkamp 2008). Therefore, to reduce such risks, customers increase their reliance on word-of-mouth communication to obtain information concerning the offerings (Bansal and Voyer 2000). Because the impact of customer satisfaction on future COS can be driven by its effect on the presence of loyal customers and positive word of mouth, it is likely that this effect strengthens as labor intensity increases because customers are more loyal and rely more on word-of-mouth communication in such industries. That is, the negative influence of customer satisfaction on future COS should strengthen as labor intensity increases. Thus,

H_7: The negative effect of customer satisfaction on future COS is stronger (weaker) for firms operating in industries with higher (lower) labor intensity.

Method Data Collection

We obtain the customer satisfaction score and the accounting data on each firm from the ACSI and the Standard & Poor's COMPUSTAT databases, respectively. We define a firm's industry using its primary four-digit North American Industry Classification System (NAICS) code. In addition, we follow precedent in the finance and accounting literature to exclude firms from the utilities and the financial services industries (e.g., Dichev and Tang 2009).[4]

We collect the ACSI scores from the first quarter of 1994 to the fourth quarter of 2013. Given that the ACSI releases customer satisfaction scores on an annual basis but does so in different quarters for firms in different industries, we use the quarterly accounting data from COMPUSTAT and align it with the four quarters between the releases of the ACSI scores. We only include firms for which at least two consecutive years of customer satisfaction data are available, as our model requires the future values of COS. Our sampling criteria yield 1,207 pooled time series and cross-sectional observations from 128 firms.

[4] This exclusion is required because firms in the utilities industry operate in a monopoly environment and have different financial reporting requirements, which thus makes it difficult to compare their financial performance metrics with firms from other industries. Similarly, the financial reporting requirements and the regulatory restrictions of firms in the financial services industries (banks, insurance, and brokerage firms) differ significantly from firms in other industries.

Measures and Data

Customer satisfaction and moderators. The ACSI collects customer satisfaction data from over 50,000 customers every year through telephone interviews. The customer satisfaction scores for each firm are scaled from 0 to 100. For firms that own multiple brands covered by ACSI, we use the average customer satisfaction scores across all brands as a measure (see Malshe and Agarwal 2015).

We calculate the extent of firm diversification as one minus the Herfindahl index of the firm's sales across all its business segments (e.g., Kovach et al. 2015) and the firm's capital intensity as the ratio of its net plant, property, and equipment to its total assets (e.g., McAlister et al. 2016). Consistent with prior research (e.g., Wies et al. 2019), we measure the firm's financial leverage as the ratio of its total long-term debt to its total assets. Industry concentration is the four-digit NAICS Herfindahl index of firm sales (e.g., Gruca and Rego 2005), and industry growth is the difference in the natural logarithm of the total sales of all firms within the same four-digit NAICS code at the end of the current year from the end of the preceding year (e.g., Whitler, Krause, and Lehmann 2018). We measure industry labor intensity as the average ratio of the number of employees to the total sales of the firms within the same fourdigit NAICS code (e.g., Liu, Shankar, and Yun 2017).

Dependent variable. We measure a firm's COS using the selling expenses obtained from its SG&A. Specifically, out of the 16 distinct expense items in SG&A (see COMPUSTAT Online Help Manual SG&A 2017), we consider the following five expense items—commissions, marketing expense, advertising expense, freight-out expense, and bad debt expense—as selling expenses and thus part of a firm's COS (Lee et al. 2015). To account for the differences in size across firms, we scale selling expenses by the firm's total sales.

Following prior research that decomposes SG&A (e.g., Im, Grover, and Teng 2013; Lee et al. 2015), to measure a firm's COS, we subtract the expense items that are not relevant to a firm's COS from its SG&A. Table 1 outlines the expense items in SG&A and the methodology and data sources utilized to subtract items that are not relevant to a firm's COS.

Although there are 11 expense items that are not relevant to a firm's COS (see Table 1), not all of them require subtraction from SG&A. Given that we are only focusing on firm-year observations for which SG&A is reported (i.e., for operating expense) and we do not have subsidiary firms in our sample (i.e., for parent company charges), operating expense and parent company charges are not applicable to our research context. As such, subtraction of these expense items is not required.

However, we need to subtract the following five items— engineering expense, foreign currency adjustments, indirect costs, strike expense, and extractive industries' expenses— from SG&A. Because they are not available in COMPUSTAT as separate items, we draw on the text-analysis tool WRDS SEC Analytics Suite to search through the 10-K filings of the firms within our sample for these items and subtract them from SG&A if they are disclosed separately (for detailed information on WRDS SEC Analytics Suite and the text analyses procedure, see Web Appendix B). By doing so, we follow "SEC Regulation S-X (17 CFR Part 210) §210.402 Items not material" and the materiality principle in accounting (see, e.g., Etzion and Ferraro 2010). That is, if these items are not disclosed as separate items in the 10-K filings, then they are not material (i.e., the amount is not significant enough to be disclosed as a separate item). To subtract the remaining four items—directors' compensation, pension-related expenses, research-and-development expenses (R&D), and research revenue—from SG&A, we draw on data at either the annual or quarterly level depending on the data availability in COMPUSTAT (for more details on the data sources, see Table 1). Taken together, we need to subtract nine expense items from SG&A to obtain a firm's COS.

Table 1. Deriving COS from SG&A.

SG&A Item	Description of Item in COMPUSTAT	Relation to COS	Method of Subtraction	Data Source(s)
Selling Expenses				
Commissions	Commissions	Part of COS	—	—
Marketing expense	Marketing expense	Part of COS	—	—
Advertising expense	Advertising expense	Part of COS	—	—
Freight-out expense	Freight-out expense	Part of COS	—	—
Bad debt expense	Bad debt expense, provision for doubtful accounts	Part of COS	—	—
General and Administrative Expenses				
Operating expense	Operating Expense, Total when a separate COGS figure is given and there is no SG&A	Not relevant to COS but subtraction of item is not required because we do not consider cases when SG&A is not reported	—	—
Parent company charges	Parent company charges for administrative services	Not relevant to COS but subtraction of item is not required because we do not consider firms that are subsidiaries	—	—
Engineering expense	Engineering expense	Not relevant to COS and needs to be subtracted	Using text-analysis tool WRDS SEC Analytics Suite	SEC filings
Foreign currency adjustments	Foreign currency adjustments when included by the company	Not relevant to COS and needs to be subtracted	Using text-analysis tool WRDS SEC Analytics Suite	SEC filings
Indirect costs	Indirect costs when a separate COGS figure is given	Not relevant to COS and needs to be subtracted	Using text-analysis tool WRDS SEC Analytics Suite	SEC filings
Strike expense	Strike expense	Not relevant to COS and needs to be subtracted	Using text-analysis tool WRDS SEC Analytics Suite	SEC filings
Extractive industries' expenses	Extractive industries' lease rentals or expense, exploration expense, R&D, and geological and geophysical expenses	Not relevant to COS and needs to be subtracted	Using text-analysis tool WRDS SEC Analytics Suite	SEC filings
Directors' compensation	Directors' fees and remuneration	Not relevant to COS and needs to be subtracted	Using annual data on total compensation for directors (DT: TOTAL_SEC) and verify using text-analysis tool WRDS SEC Analytics Suite	COMPUSTAT EXECUCOMP, SEC filings
Pension-related expenses	Pension, retirement, profit sharing, provision of bonus and stock options, employee insurance, and other employee benefit expenses, for non-manufacturing companies	Not relevant to COS and needs to be subtracted	Using annual data on pension and retirement expenses (DT: XPR) and verify using text-analysis tool WRDS SEC Analytics Suite	COMPUSTAT, SEC filings
R&D	R&D, unless included in COGS by the company	Not relevant to COS and needs to be subtracted	Using quarterly data on R&D expenses (DT: XRDQ) and verify using text-analysis tool WRDS SEC Analytics Suite	COMPUSTAT, SEC filings
Research revenue	Research revenue that is less than 50 percent of total revenues for two years	Not relevant to COS and needs to be subtracted	Using quarterly data on R&D expenses (DT: XRDQ) and verify using text-analysis tool WRDS SEC Analytics Suite	COMPUSTAT, SEC filings

Notes: SEC = U.S. Securities and Exchange Commission; WRDS = Wharton Research Data Services; EXECUCOMP = Executive Compensation; DT = Data Item. We present the 16 SG&A items based on the definition provided by COMPUSTAT (see COMPUSTAT Online Help Manual SG&A 2017). The decomposition of SG&A expenses into selling expenses and general and administrative expenses is adapted from Lee et al. (2015). For more information on the text analyses conducted using the WRDS SEC Analytics Suite, refer to Web Appendix B.

Before we subtract any items, it is important that we verify that these items are indeed included in SG&A to avoid erroneously removing an item when it is not actually included. This data step is vital because a firm's definition of SG&A may not always be consistent with COMPUSTAT's. For example, Atlantic Richfield does not consider items such as R&D, pension, and exploration expenses as part of its definition of SG&A, even though these items are listed as a part of the itemized expenses of SG&A according to COMPUSTAT's definition. Thus, we adopt the following process to subtract items from SG&A.

First, we obtain a firm's SG&A from COMPUSTAT. Second, we collect information on the nine expense items (see Table 1), which are likely to be included in SG&A but are irrelevant to COS. Third, for each firm, we first determine which of the nine items are included in its SG&A and then subtract only those items that are included. When subtracting items from SG&A, we use a ratio-based approach in which we express the item as a fraction of the total SG&A for that fiscal year before multiplying this fraction with the SG&A for a specific quarter within that same fiscal year.

We present the comparisons of other commonly used SG&A-based measures of selling-related expenses in Table 2— that is, a firm's SG&A scaled by its total sales (SG&A/TS) and the difference in its SG&A and R&D expenditures scaled by its total sales [(SG&A R&D)/TS]. As Table 2 shows, the difference in means for these two alternative measures and our focal measure is positive and statistically significant. For some firms, this difference can mean an overestimation of almost US$3 billion (e.g., Apple) if we use the SG&A/TS measure and more than US$750 million (e.g., HP Inc) if we use the [(SG&A R&D)/TS] measure. Importantly, our findings are consistent with recent work showing that the utilization of these commonly used SG&A-based measures of selling expenses is likely to result in an inflation of firms' COS and possibly an erroneous estimation of its effects (see Ptok, Jindal, and Reinartz 2018).

Table 2. Comparing COS with Other SG&A-Based Measures of Selling-Related Expenses.

	Level Differences								
	COS/TS								
	Difference in Means			Comparing the Focal Measure with the Corresponding SG&A-Based Proxy When There Is...					
	Absolute Value (SE)	Dollar Value (in Millions of Dollars)		No Difference	<1% Difference	1%–5% Difference	5%–10% Difference	10%–20% Difference	>20% Difference
SG&A/TS	.019 (.001)***	432.002	Percentage of observations	6%	14%	36%	18%	12%	15%
			Dollar value of difference in means (in millions of USD)	0.000	27.591	145.280	202.445	647.791	1800.957
(SG&A – R&D)/TS	.007 (.000)***	144.168	Percentage of observations	10%	20%	48%	14%	5%	4%
			Dollar value of difference in means (in millions of USD)	0.000	23.967	140.540	197.434	532.668	520.671

	Correlation Matrix[a]			
	Variable	1	2	3
1	COS	1.000		
2	SG&A – COS	**.295**	1.000	
3	SG&A – R&D – COS	**.512**	**.360**	1.000

***$p < .01$ (two-sided).

[a]To obtain meaningful correlations of COS with the other SG&A-based measures of selling-related expenses, we subtract COS from SG&A and SG&A – R&D because COS is a subset of SG&A (see Table 1 and COMPUSTAT Online Help Manual SG&A [2017] for the definitions of COS and SG&A, respectively). The difference in means, their corresponding standard errors, and the correlations appear in their original values (i.e., before applying any variable transformations. We compute the dollar values of the difference in means using values from the unscaled versions of the measures (i.e., COS, SG&A and SG&A – R&D, respectively). Correlations that are significant at $p < .10$ (two-sided) appear in bold. There are 1,207 observations from 128 firms.

Notes: SG&A – R&D = SG&A minus R&D; TS = total sales; COS/TS = ratio of COS to TS; SG&A/TS = ratio of SG&A to TS; (SG&A – R&D)/TS = ratio of SG&A minus R&D to TS; SG&A – COS = SG&A minus COS; SG&A – R&D – COS = SG&A minus R&D minus COS.

Control variables. In addition to the six moderators, we also control for several financial characteristics that can influence a firm's spending behavior and thus its future COS. Specifically, prior research has suggested that the financial performance of a firm can drive its spending behavior such that firms that are less profitable are likely to lower their future COS (Mizik 2010). As such, we include Tobin's q (i.e., a firm's market-to-book ratio) to account for firm performance (Newton and Simutin 2015).

Furthermore, the amount of slack organizational resources that a firm possesses may also influence its ability to respond to changing demands of customers (Homburg, Krohmer, and Workman 2004) and thus affect its spending behavior. To account for factors that can potentially drive a firm's future COS, we include three variables. First, given that changes in inventory levels can influence a firm's capacity to react to supply and demand variations (Kovach et al. 2015), we include inventory slack to capture the spare physical inventory of a firm (Azadegan, Patel, and Parida 2013). Second, we include retained earnings to take into

account the resources that a firm allocates in preparation for unanticipated circumstances and implementation strategies (Bourgeois 1981). Finally, to consider the firm's effectiveness in its usage of liquid assets (e.g., cash) to generate sales, we include working capital (Lee and Grewal 2004).

Prior research has suggested that when firms have limited budgets, they can potentially make trade-offs between their spending behaviors in R&D and marketing to allocate funds effectively (Chakravarty and Grewal 2011). Thus, we include R&D intensity as a control variable. In addition, we also account for the difference in firms' spending behaviors across industries. Existing research suggests that when the unpredictability in the nature and quantity of customers' requirements increases, it becomes harder for firms to rely on customers' prior knowledge (Homburg, Vollmayr, and Hahn 2014). The constant changes in customers' preferences can potentially influence a firm's willingness to adjust its future COS. Thus, we control for industry turbulence to account for the extent to which industry demand changes rapidly and unpredictably (Fang, Palmatier, and Grewal 2011). We present all control variables, their measures and data sources, and references to prior literature supporting the use of these measures in Web Appendix C, Table C1.[5]

Empirical Strategy

We use a linear model specification to test our hypotheses, in which we treat COS as a function of customer satisfaction, moderators, and control variables. Because a firm's future COS is likely to depend on its current customer satisfaction and other explanatory variables, we incorporate this temporal separation into the model with a panel data structure. In addition, our model also takes into account the following identification challenges emanating from endogeneity concerns due to four types of omitted variable biases.

First, exogenous shocks concerning boom and bust business cycles can influence a firm's COS and customer satisfaction. For example, it is well documented that marketing budgets are curtailed during bust periods (Srinivasan, Rangaswamy, and Lilien 2005). Thus, to control for exogenous shifters that might influence a firm's COS, we include year dummies (i.e., timespecific fixed effects). Second, variables such as organizational culture that are largely stable over time (Harrison and Carroll 2006) can also influence both how much a firm spends on marketing (i.e., COS) and the level of customer satisfaction it achieves. For example, firms that place more emphasis on customer engagement can spend more on selling-related activities and also have higher levels of customer satisfaction. Therefore, to capture firm-specific variables that do not vary over time (e.g., organizational culture), we also include firm-specific fixed effects. Because industry idiosyncrasies can be teased out using both the time- and firm-specific fixed effects (see Kang, Germann, and Grewal 2016), inclusion of these fixed effects also accounts for industry variables that do not change over time.

Third, firm-specific variables that change over time can also potentially influence a firm's COS and its customer satisfaction levels. To illustrate, the mindset of the CEO and/or chief marketing officer (CMO) can determine the emphasis on customer satisfaction or the firm's expenses on marketing-related activities (i.e., its COS) over two- to five-year periods (i.e., based on average tenures of CEOs and CMOs; e.g., Germann, Ebbes, and Grewal 2015). Thus, we also include a rich set of covariates to proxy for any time-varying omitted variables.

Fourth, given that prior research has used SG&A as a predictor of customer satisfaction (e.g., Mittal et al. 2005), reverse causality can also be a cause for concern. For example, one can argue that a firm's current COS can instead have an impact on its current customer satisfaction levels. We aim to mitigate such concerns in our model by lagging the explanatory variables by one year (e.g., Srinivasan, Wuyts, and Mallapragada 2018). However, given that customer satisfaction is persistent, the use of lagged variables may not completely correct for the potential reverse causality. Literature in economics suggests that reverse causality can be framed as a form of omitted variable bias, where the omitted variable varies over time (e.g., see econometric texts such as Wooldridge [2002]). In this way, the inclusion of a rich set of covariates also accounts for concerns relating to reverse causality if there is autocorrelation in the explanatory variables despite the temporal separation. Thus, we can specify our model as follows:

$$\begin{aligned} \mathrm{COS}_{ij(t+1)} = {} & \beta_{0i} + \beta_1 \mathrm{CS}_{ijt} + \mathrm{CS}_{ijt} \times (\beta_2 \mathrm{DIV}_{ijt} + \beta_3 \mathrm{CI}_{ijt} \\ & + \beta_4 \mathrm{LEV}_{ijt} + \beta_5 \mathrm{HERF}_{jt} + \beta_6 \mathrm{IGRWTH}_{jt} \\ & + \beta_7 \mathrm{LI}_{jt}) + \beta_8 \mathrm{CNTRLS}_{ijt} + \sum_{k=9}^{26} \beta_k \mathrm{D}_t + \epsilon_{ij(t+1)}, \end{aligned} \quad (1)$$

[5] We mean-center all continuous variables to facilitate the interpretation of the interaction effect parameter estimates and Winsorize all continuous variables at the 1st and 99th levels to lower the impact of outliers.

where b_{0i} is the fixed effect that captures the firm-specific heterogeneity in $COS_{ij(t+1)}$, $COS_{ij(t+1)}$ is the future COS of firm i in industry j at time t þ 1, CS_{ijt} is the customer satisfaction of firm i in industry j at time t, DIV_{ijt} is firm diversification, CI_{ijt} is capital intensity, LEV_{ijt} is financial leverage, $HERF_{jt}$ is industry concentration, $IGRWTH_{jt}$ is industry growth, LI_{jt} is industry labor intensity, $CNTRLS_{ijt}$ is the vector of firm- and industry-specific control variables, D_t are the year dummy variables, and $\in_{ij(t+1)}$, is the random error term.

The identifying assumption in Equation 1 is that beyond the firm-specific fixed effects, the omitted variables do not vary over time (Germann, Ebbes, and Grewal 2015). Although we include a rich set of covariates in Equation 1 to account for the time-varying omitted variables, it is difficult to argue that we can observe all important variables that may influence both firms' customer satisfaction levels and their COS. Therefore, to account for the time-varying omitted variables, we adopt a two-step control function approach with an appropriate instrumental variable (e.g., Han, Mittal, and Zhang 2017).

We perform the control function estimation by first estimating an auxiliary equation with customer satisfaction as the dependent variable using the following specification:

$$\begin{aligned} CS_{ijt} = {} & \alpha_{0i} + \alpha_1 \mathbf{WPCS_{ijt}} + \alpha_2 DIV_{ijt} + \alpha_3 CI_{ijt} \\ & + \alpha_4 LEV_{ijt} + \alpha_5 HERF_{jt} + \alpha_6 IGRWTH_{jt} + \alpha_7 LI_{jt} \\ & + \alpha_8 CNTRLS_{ijt} + \sum_{k=9}^{26} \alpha_k D_t + \gamma_{ijt}, \end{aligned} \tag{2}$$

where α_{0i} captures firm fixed effects that account for the firm-specific heterogeneity in customer satisfaction and g_{ijt} is the random error term (other variables, including time fixed effects, are defined as previously).

The auxiliary equation specified in Equation 2 includes the six moderators (DIV_{ijt}, CI_{ijt}, LEV_{ijt}, $HERF_{jt}$, $IGRWTH_{jt}$, and LI_{jt}), the rich set of covariates ($CNTRLS_{ijt}$) and the year dummy variables (D_t). For identification purposes, we also include weighted peers' customer satisfaction ($WPCS_{ijt}$) as an instrument. We identify peer firms as firms with brands that are classified in at least one common ACSI-defined sector with that of the brand(s) owned by the focal firm (for sector definitions, see ACSI [2018]).[6] An ACSI-defined sector consists of several ACSI-defined industries. For example, the ACSIdefined industries Airlines and Consumer Shipping belong to the Transportation sector in ACSI (see Web Appendix D, Table D1). In this way, a firm's (e.g., Delta's) peers can either be from the same ACSI-defined industry as that of the firm (e.g., United) or from another industry that is in the same ACSIdefined sector (e.g., FedEx belongs to the Transportation sector).[7] Before delving into the operationalization of the instrument, we note that the instrument meets the standard instrument relevance and exclusion restriction criteria, as we discuss subsequently. In addition, we also aim to use an instrument with a property we refer to as "granularity," such that a granular instrument implies that the instrument varies at the level of the endogenous explanatory variable; we delve into this and other instrument validity criteria after defining the instrument.[8] Specifically, we define the instrument as follows:

$$\mathbf{WPCS_{ijt}} = \frac{\sum_{i' \neq s}^{N} [w_{ii'st} \times CS_{i'st}]}{\sum_{i' \neq s}^{N} w_{ii'st}}, \tag{3}$$

where $w_{ii`st}$ denotes the weight of the relationship between focal firm *i* and peer firm *i* in ACSI-defined sector s at time *t*, and $CS_{i`st}$ is the customer satisfaction score of the peer firm *i* in ACSI-defined sector s at time t. Consistent with our measurement of a firm's overall customer satisfaction, for firms that possess multiple brands across ACSI-defined sectors, we take the average

[6] The resulting classification of firms in the ACSI-defined sectors maps closely to that of the Standard Industrial Classification (SIC) and the NAICS codes because the ACSI sectors are originally defined based on the SIC codes (see Fornell et al. 1996, p. 9) and, subsequently, the NAICS codes (see Bryant, Fornell, and Morgeson 2008, p. 3). To illustrate, the firms that belong to the Transportation sector in ACSI (see Web Appendix D, Table D1) also belong to the Transportation by Air sector based on their two-digit SIC codes (i.e., 45) and the Transportation and Warehousing sector based on their two-digit NAICS codes (i.e., 48–49).

[7] We do not consider other brands that belong to the focal firm as peers. For example, the computation of Delta's weighted peers' customer satisfaction score does not include any information from Northwest (see Web Appendix D, Table D1).

[8] The motivation for granularity comes from Angrist (2014), in which the goal is to ensure enough variation in the instrument across observational units for estimating peer effects (see also Shi, Grewal, and Sridhar 2020). Germann, Ebbes, and Grewal (2015) also develop a similar idea in their instrument when they utilize a peer instrument with partially overlapping peers (which is similar to our case; in essence, we utilize a peer instrument as in Germann, Ebbes, and Grewal [2015] but do not estimate peer effects as in Angrist [2014] and Shi, Grewal, and Sridhar [2020]).

weighted peers' customer satisfaction scores across these sectors.[9] We discuss the operationalization of the weights for the relationship between the focal firm and its peers, and present examples of the measurement of the instrument in Web Appendix D.[10]

To evaluate the conceptual quality of the proposed instrument, we follow recent recommendations and delve into discussing instrument relevance, exclusion restriction, and granularity (see Germann, Ebbes, and Grewal 2015; Shi, Grewal, and Sridhar 2020). Instrument relevance implies that the proposed instrument conceptually correlates with the endogenous variable. According to the long-standing conceptualization of customer satisfaction, customers determine their satisfaction levels with a firm on the basis of the comparisons that they make between their expectations and their perceptions of the performance of the firm's products/services (Haumann et al. 2014). Because customers often distribute their purchases amongst several competing firms, their perceptions of the performance of the products/services of the firm's peers are likely to influence their expectations of the firm's offerings (Keiningham et al. 2015). Thus, customers are likely to evaluate a firm's customer satisfaction relative to its peers (Keiningham et al. 2014), and peers with similar firm characteristics are likely to have greater influence (see, e.g., Woodruff, Cadotte, and Jenkins 1983). Taken together, the weighted customer satisfaction scores of a firm's peers are likely to influence its customer satisfaction level, thus making it a relevant instrument for customer satisfaction.

Exclusion restriction implies that the proposed instrument does not correlate with the omitted variables that are a part of the error term but is likely to be correlated with the endogenous variable (Wooldridge 2002). To provide a theoretically grounded explanation for the proposed exclusion restriction, consider the example of the degree of TMT integration, a plausible omitted variable that is likely to be correlated with customer satisfaction and COS. TMT integration reflects the extent of collaboration, shared information, joint decision making, and shared vision within the TMT (Hambrick 1994). These attributes, in turn, are critical for coordinating actions among TMT members and for improving the quality of strategic decisions (Carmeli and Schaubroeck 2006). As such, the extent of TMT integration within a firm should be correlated with its level of customer satisfaction (Simsek et al. 2005). However, there is little reason to believe that our proposed instrument (i.e., the weighted customer satisfaction levels of a firm's peers) would correlate with a firm's degree of TMT integration.

First, prior research has suggested that a firm's extent of TMT integration is more likely to be influenced by attributes within the firm, such as concurrent changes in the diversity of team members or CEO mindset (Simsek et al. 2005), as opposed to outside factors that are not within its control. Second, the customer satisfaction of a firm's peers is a representation of the joint decisions made by both the customers of the firm and its peers. Because customers rarely possess knowledge of the identities of one another, it is highly implausible for them to collectively adjust their satisfaction ratings of all the firm's peers due to changes in a firm's degree of TMT integration. Coordination among peer firms to imitate the firm's level of TMT integration is also unlikely, as it is not common for peers to jointly monitor the implementation of specific strategies from a particular firm (Han, Mittal, and Zhang 2017).

Importantly, the identification of a firm's peers using the ACSI-defined sector classification also mitigates the possibility of cooperative monitoring of an individual firm from all its peers. Specifically, because our definition of a firm's peers also includes peer firms that are from an adjacent (but not the same) ACSI-defined industry as that of the focal firm, it is implausible for the customer satisfaction levels of a firm's peers to correlate with its degree of TMT integration.[11] For example, consider the Transportation sector as presented in Web Appendix D, Table D1. While UPS and FedEx have little incentive to collaborate with the other airlines to monitor and react to changes in Delta's level of TMT integration, it is also improbable for Delta to change the extent of its TMT integration due to the changes in the customer satisfaction levels of UPS and FedEx. Taken together, both prior theory and the construction of our instrumental variables indicates that the weighted peers' customer satisfaction meets the exclusion restriction and is a valid instrument. exclusion restriction and is a valid instrument.

A common criticism against the use of peer-based instruments is granularity, when there is insufficient systematic variation in the group composition (Angrist 2014) such that the likelihood for a firm to behave in a certain way varies with the behavior of the group but does not sufficiently vary with the exogenous characteristics of the group (Manski 1993). Consider the common operationalization of peer-based instrument—the industry average value excluding the focal firm. In this case, the only source of variance in the instrument across firms comes from the exclusion of the focal firm while calculating the value of the instrument, resulting in little change in its value across firms and over time. In addition, the simple exclusion of the focal firm's value also

[9] For example, in 2012, ACSI classified brands from Microsoft Corporation in the E-Business sector (i.e., Bing and MSN) and the Telecommunications and Information sector (i.e., Microsoft). As such, to compute the weighted peers' customer satisfaction score for Microsoft Corporation in 2012, we take the average of its weighted peers' customer satisfaction score in both the E-Business sector and the Telecommunications and Information sector. We perform such computations for only 39 observations (i.e., approximately 3%) of our sample.

[10] Briefly, using four key firm characteristics (i.e., market valuation, geographical diversification, size, and age), we adopt the classical multidimensional scaling method to obtain the Euclidean distances between a focal firm and its peers and used these distances to compute the weights for the instrument (for details, see Web Appendix D).

[11] We thank an anonymous reviewer for this suggestion.

makes it impossible to determine whether the focal firm's behavior is being influenced by that of its peers or that the behavior of its peers is actually an aggregation of the behavior of individual firms (Manski 2000).

The measurement of the weighted peers' customer satisfaction scores relies on the construction of groups that are partially overlapping in terms of the ACSI-defined sector classifications and the weighing of firms by their characteristics within each ACSI-defined sector.[12] In this way, the use of this measure is likely to increase the variation in group composition and thus can preclude concerns associated with granularity as "it breaks down the linear dependence between endogenous and exogenous peer variables" that varies at the individual firm level (see Shi, Grewal, and Sridhar 2020, p. 13). Reassuringly, we find that there is substantial variation in the weighted peers' customer satisfaction scores across ACSI-defined sectors (see Web Appendix E, Figure E1).

In the second step, we then estimate Equation 1 with the predicted residuals obtained from Equation 2. As such, our final equation is as follows:

$$\begin{aligned} COS_{ij(t+1)} = {} & \beta_{0i} + \beta_1 CS_{ijt} + CS_{ijt} \times (\beta_2 DIV_{ijt} + \beta_3 CI_{ijt} \\ & + \beta_4 LEV_{ijt} + \beta_5 HERF_{jt} + \beta_6 IGRWTH_{jt} \\ & + \beta_7 LI_{jt}) + \beta_8 CNTRLS_{ijt} + \sum_{k=9}^{26} \beta_k D_t \\ & + \beta_{27} \mu_{ijt} + \epsilon_{ij(t+1)}, \end{aligned} \quad (4)$$

where μ_{ijt} is the predicted residuals from estimating the auxiliary regression (Equation 2). Following the recommendation of Petrin and Train (2010), we also implement the bootstrap to obtain standard errors that consider the additional source of variation due to the use of an estimate (i.e., μ_{ijt} from Equation 2) in Equation 4. Using 500 bootstrap samples, we first obtain 500 sets of predicted residuals from the estimation of Equation 2 and then use each set of predicted residuals in the estimation of Equation 4 (Papies, Ebbes, and Van Heerde 2017).

Results

We outline the descriptive statistics and bivariate correlations between the variables and present the results from the auxiliary equation (Equation 2) in Table 3 and Table E1 of Web Appendix E, respectively. Consistent with our expectations, we find that weighted peers' customer satisfaction significantly and positively predicts firms' customer satisfaction $\alpha_1 = .567$; $p < :01$). Results from the F-test for instrument strength also suggest that our focal instrument is not a weak instrument, as we find that the F-statistic is 98.570 ($p < .01$), well above the cutoff of 10 (Staiger and Stock 1997). We report the estimated results of both a model that includes only the main effect of customer satisfaction and the covariates (M1), and a model that also includes the moderating effects (M2) in Table 4. The condition indices of M1 and M2 (i.e., 12.170 and 14.000, respectively) are both well below the more rigorous cutoff criterion of 20 (Greene 2012). Thus, multicollinearity does not seem to be an issue for either model. As shown in Table 4, M1 already supports H_1, with a significant negative effect for customer satisfaction ($\beta_1 = -.004$; $p < .05$). Importantly, the addition of the hypothesized interaction effects resulted in a significant increase in model fit ($\chi^2(6) = 40.73$; $p < .01$). Thus, we focus our subsequent discussion on the results from M2.

The predicted residuals term is statistically significant ($\beta_{27} = .004$; $p < .10$), thus indicating the importance of accounting for the endogeneity of our focal independent variable, customer satisfaction (see Petrin and Train 2010). Consistent with H_1, we find that customer satisfaction has a significantly negative effect on future COS ($\beta_1 = .005$; $p < .05$). Parameter estimates also provide support for H_2 (as opposed to H_{2alt}), as we find that the negative effect of customer satisfaction on future COS becomes stronger as diversification increases ($\beta_2 = .003$; $p < .01$). We also find support for H_3, as the negative effect of customer satisfaction on future COS becomes weaker as capital intensity increases ($\beta_3 = .005$; $p < .01$). Results also indicate that the negative effect of customer satisfaction on future COS becomes weaker as financial leverage increases ($\beta_4 = .002$; $p < .10$), thus providing marginal support for H_4. We also find support for H_6 and H_7, as the negative effect of customer satisfaction on future COS becomes stronger as industry growth and industry labor intensity increase ($\beta_6 = .005$; $p < .01$; $\beta_7 = .035$; $p < .05$). Contrary to our expectations, however, there is insufficient evidence to support H_5, as we find that changes in industry concentration do not significantly influence the negative effect of customer satisfaction on future COS ($\beta_5 = .003$; $p > .10$).

[12] Our approach is similar in spirit to existing approaches that address granularity. For example, Shi, Grewal, and Sridhar (2020) use data about different operating business segments of firms to construct peer groups that are partially overlapping.

Table 3. Descriptive Statistics and Correlation Matrix.

	Correlation Matrix													
Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
1. Future cost of selling[a]	1.000													
2. Customer satisfaction	**.162**	1.000												
3. Firm diversification	.044	**.235**	1.000											
4. Capital intensity	**−.286**	**−.217**	**−.357**	1.000										
5. Financial leverage	**−.084**	**−.241**	**−.074**	**.147**	1.000									
6. Tobin's q	**.160**	**.252**	.029	**−.183**	−.029	1.000								
7. Inventory slack	**.227**	**.347**	**.048**	**−.094**	**−.107**	**−.144**	1.000							
8. Working capital	.041	**.105**	.030	**−.433**	**−.230**	**.136**	**.247**	1.000						
9. Retained earnings	.039	**.283**	**.057**	**.136**	**−.403**	**.057**	**.244**	−.044	1.000					
10. R&D intensity	**−.064**	**.134**	**.058**	**−.362**	**−.190**	**.310**	**−.108**	**.384**	**−.119**	1.000				
11. Industry concentration	**.198**	**.258**	**.153**	**−.240**	**−.173**	**.065**	**.200**	**.169**	−.037	**.051**	1.000			
12. Industry growth	−.030	**−.061**	**−.065**	−.005	−.008	**.080**	**−.118**	.007	−.031	.041	**−.082**	1.000		
13. Industry turbulence	−.033	**−.107**	**−.072**	**−.058**	**.050**	**.120**	**−.177**	−.027	**−.062**	**.084**	**.059**	**.261**	1.000	
14. Industry labor intensity	.002	.037	**.114**	**−.114**	−.020	**.211**	**−.159**	**.103**	−.029	**.181**	.018	.030	.004	1.000
Mean	.209	76.960	.294	.337	.245	1.866	.139	.087	.212	.012	.207	.049	.111	.014
SD	.098	6.547	.301	.185	.194	1.467	.117	.159	.506	.027	.164	.089	.064	.019
Min	.026	58.000	.000	.026	.000	.328	.000	−.241	−2.242	.000	.043	−.269	.000	.002
Max	.537	87.500	1.000	.748	1.127	9.102	.527	.596	1.276	.149	.951	.308	.357	.135

[a]Future cost of selling refers to the cost of selling of a firm in the following year, where we refer to year as the aggregation of data over the four quarters corresponding to the period between the release of ACSI scores.

Notes: Correlations that are significant at $p < .10$ (two-sided) are in bold. The mean, standard deviation, minimum, maximum, and correlation values of the variables appear in their original values (i.e., before applying any variable transformations). There are 1,207 observations from 128 firms.

Sensitivity Analyses

We conduct several sensitivity analyses to examine the robustness of our conclusions across the use of alternative instruments, an instrument free approach, alternative model specifications, different measures of industry classification and of the focal dependent variable, and alternative sample composition. As elaborated in Web Appendix F, we continue to find broad support for the proposed hypotheses.

Post Hoc Analyses: Splitting COS into Cost of Persuasion and Cost of Convenience

Given that COS reflects both cost of persuasion and convenience, a natural question concerns how the effects of customer satisfaction differ between these two components of COS. To explore this question, we first break down COS into cost of persuasion (comprising commissions and marketing and advertising expenses) and cost of convenience (comprising freight-out and bad debt expenses).[13] Next, we estimate separate models for the two components using the same specification as in our focal analysis.

Table 5 outlines the results of our model for the future cost of persuasion and convenience. Across the two dependent variables, we continue to find that customer satisfaction has a significant negative main effect. In addition, we find that the negative effect of customer satisfaction on both the future cost of persuasion and convenience is stronger in industries with higher growth. Whereas the results for the impact of customer satisfaction on the future cost of persuasion are largely in line with the proposed hypotheses, those for its impact on the future cost of convenience differ in three keys ways.

[13] We utilize the same procedure as outlined in the "Measures and Data" section to derive the two components. First, we identify and subtract freight-out and bad debt expenses from our focal measure of COS to compute the cost of persuasion. We then take the sum of the freight-out and bad debt expenses to arrive at the cost of convenience. For the set of keywords used in the text analyses to search for freight-out and bad debt expenses in firms' 10-K filings, see Web Appendix B.

First, the magnitude of the impact of customer satisfaction on the future cost of persuasion is significantly higher than its negative effect on the future cost of convenience. Put differently, the benefits of higher customer satisfaction are more salient for persuading customers via initiatives of advertising, marketing spending, and commissions to sales personnel, as compared to spending efforts on providing convenience to customers. One plausible explanation for this observed difference concerns the higher stickiness of convenience from the perspective of customers. Indeed, prior research has suggested that convenience serves as a significant switching cost for customers (Seiders et al. 2005), where they are likely to formulate their expectations of a firm's provision of convenience based on industry norms. As such, although satisfied customers tend to be loyal (Gustafsson, Johnson, and Roos 2005), a firm's ability to encourage actual repurchases may still be limited if it does not offer sufficient convenience (Voss, Godfrey, and Seiders 2010). In fact, it is plausible that this higher salience of convenience for customers might explain the robustness of the negative effect of customer satisfaction on the future cost of convenience across levels of capital intensity, financial leverage, and labor intensity.

Second, consistent with H_2, the negative effect of customer satisfaction on the future cost of persuasion is stronger for diversified firms (i.e., the benefits of customer satisfaction are more salient for such firms because they can leverage these benefits across multiple business segments; e.g., Zahavi and Lavie 2013). However, the weaker negative effect of customer satisfaction on the future cost of convenience for more diversified firms is consistent with $H2_{alt}$ (i.e., benefits of satisfied customers are less salient for diversified firms because the operational complexity of such firms makes it difficult for them to leverage these benefits across diverse business segments; e.g., Luo and Homburg 2008). Indeed, one can argue that provision of convenience for customers requires significant and complex investments in logistics and financial structures (e.g., Shang et al. 2017).

Third, the negative effect of customer satisfaction on the future cost of convenience is stronger for concentrated industries. This effect is consistent with the expectations of Seiders et al. (2005), who find that convenience is important for customers in concentrated industries. As industry concentration decreases, competitive offerings increase and customers' access to options increases as well. As such, even loyal customers may be tempted to shift their purchases to a competitor (e.g., Luo and Homburg 2007). Taken together, the post hoc analyses underscore the need for future research to theoretically and empirically examine the two components of COS (i.e., cost of persuasion and convenience).

Discussion Theoretical Implications

Synthesizing the literature in economics (Bronnenberg 2015), marketing (Malshe and Agarwal 2015), and operations (Kovach et al. 2015), we present the first empirical study of the effect of customer satisfaction on the future COS of a firm. Indeed, extant research that examines the financial effects of marketing assets does not investigate their cost implications. Thus, our key theoretical contribution is in outlining the arguments for the negative effect of customer satisfaction on future COS and bringing to fore the firm and industry level contingencies. In addition, we also qualify the received view that customer satisfaction drives profits predominantly through its effects on revenue expansion by identifying it as an asset that enables a firm to achieve a "dual emphasis" of not only revenue expansion but also cost reduction (Luo and Homburg 2007; Mittal et al. 2005).

Our findings also complement existing research that identifies circumstances under which firms are more or less likely to utilize customer satisfaction information (e.g., Morgan, Anderson, and Mittal 2005). First, we contribute to a nascent body of literature by showing that the strategic focus of a firm not only moderates the effectiveness of its spending behavior (see McAlister et al. 2016) but also influences the impact of marketing assets, such as customer satisfaction on future COS. In addition, our post hoc analyses identify a boundary condition as we find that the negative effect of customer satisfaction on the cost of persuasion (convenience) is stronger (weaker) as firm diversification increases (decreases).

Second, we contribute to prior work that underscores the importance of strategic flexibility in moderating the financial outcomes of marketing assets (e.g., Lee and Grewal 2004). Consistent with this stream of research, we find that the negative impact of customer satisfaction on future COS and cost of persuasion is weaker for firms with higher capital intensity and financial leverage. The negative impact of customer satisfaction on future cost of convenience, however, does not vary across levels of strategic flexibility.

Third, the results also highlight the influence of firms' operating environment on the effect of customer satisfaction on future COS. In particular, we find that the negative impact of customer satisfaction on future COS strengthens as industry growth and industry labor intensity increase. Taken together, these findings contribute to theory development by complementing existing studies that examine the heterogeneity of customer satisfaction across different operating environments (e.g., Larivi`ere et al. 2016).

Table 4. Impact of Customer Satisfaction on Future COS.

Hypothesis and Expected Sign	M1: Main Effects Only	M2: Full Model
	Coeff. (SE)	Coeff. (SE)
H_1: − Customer satisfaction	−.004 (.002)**	−.005 (.002)**
H_2: ? Customer satisfaction × Firm diversification		−.003 (.001)***
H_3: + Customer satisfaction × Capital intensity		.005 (.002)***
H_4: + Customer satisfaction × Financial leverage		.002 (.001)*
H_5: − Customer satisfaction × Industry concentration		.003 (.003)
H_6: − Customer satisfaction × Industry growth		−.005 (.002)***
H_7: − Customer satisfaction × Industry labor intensity		−.035 (.017)**
Firm-Level Controls		
Firm diversification	−.013 (.008)	−.012 (.008)
Capital intensity	.077 (.022)***	.074 (.022)***
Financial leverage	.018 (.013)	.027 (.014)**
Tobin's q	.004 (.002)*	.004 (.002)*
Inventory slack	.178 (.041)***	.198 (.041)***
Working capital	−.021 (.021)	−.023 (.020)
Retained earnings	.010 (.007)	.010 (.007)
R&D intensity	−.621 (.196)***	−.691 (.191)***
Industry-Level Controls		
Industry concentration	−.033 (.035)	−.036 (.037)
Industry growth	−.031 (.014)**	−.026 (.013)*
Industry turbulence	−.062 (.025)**	−.063 (.024)***
Industry labor intensity	−.093 (.087)	−.006 (.107)
Residuals[a]	.003 (.002)	.004 (.002)*
Firm fixed effects	Included	Included
Year dummies	Included	Included
Constant	−.003 (.008)	−.005 (.008)
Summary Statistics		
R^2	.140	.176
Wald χ^2 (d.f.)	91.260 (32)***	127.510 (38)***
Condition Index	12.170	14.000
N (n)	1,207 (128)	1,207 (128)

*$p < .10$.
**$p < .05$.
***$p < .01$.
[a]We obtain the residuals from the estimation of the auxiliary regression in Web Appendix E, Table E1.
Notes: Two-sided tests of significance. SE = bootstrap standard errors derived from performing 500 bootstrap replications using the approach illustrated in Papies, Ebbes, and Van Heerde (2017); N (n) = Total number of observations (unique firms). All continuous variables are mean-centered and Winsorized at the 1st and 99th percentile levels.

Table 5. Splitting COS: Impact of Customer Satisfaction on Future Cost of Persuasion and Cost of Convenience.

Hypothesis and Expected Sign	M1: Cost of Persuasion	M2: Cost of Convenience
	Coeff. (SE)	Coeff. (SE)
H_1: − Customer satisfaction	−.004 (.002)*	−.001 (.001)**
H_2: ? Customer satisfaction × Firm diversification	−.004 (.001)***	.001 (.000)*
H_3: + Customer satisfaction × Capital intensity	.006 (.002)***	.000 (.000)
H_4: + Customer satisfaction × Financial leverage	.002 (.001)*	.000 (.000)
H_5: − Customer satisfaction × Industry concentration	.007 (.003)**	−.003 (.002)*
H_6: − Customer satisfaction × Industry growth	−.003 (.002)*	−.001 (.001)**
H_7: − Customer satisfaction × Industry labor intensity	−.037 (.017)**	.005 (.004)
Firm-Level Controls		
Firm diversification	−.014 (.009)	.002 (.003)
Capital intensity	.072 (.022)***	.009 (.005)*
Financial leverage	.030 (.014)**	−.002 (.004)
Tobin's q	.003 (.002)	.001 (.001)***
Inventory slack	.179 (.044)***	.012 (.013)
Working capital	−.031 (.020)	.010 (.005)**
Retained earnings	.007 (.007)	.003 (.002)**
R&D intensity	−.706 (.186)***	.015 (.033)
Industry-Level Controls		
Industry concentration	−.020 (.037)	−.016 (.011)
Industry growth	−.020 (.014)	−.003 (.004)
Industry turbulence	−.068 (.025)***	.004 (.006)
Industry labor intensity	−.004 (.103)	.014 (.022)
Residuals[a]	.003 (.002)	.001 (.001)*
Firm Fixed-Effects	Included	Included
Year Dummies	Included	Included
Constant	.001 (.009)	−.006 (.004)
Summary Statistics		
R^2	.192	.128
Wald χ^2 (d.f.)	143.560 (38)***	66.870 (38)***

*$p < .10$.
**$p < .05$.
***$p < .01$.
[a]We obtain the residuals from the estimation of the auxiliary regression in Web Appendix E, Table E1.
Notes: Two-sided tests of significance. SE = bootstrap standard errors derived from performing 500 bootstrap replications using the approach illustrated in Papies, Ebbes, and Van Heerde (2017); N (n) = Total number of observations (unique firms). All continuous variables are mean-centered and Winsorized at the 1st and 99th percentile levels. There are 1,207 observations from 128 firms.

The current study also has implications from a methodological perspective as we outline an approach to measure COS by isolating the "selling" component of a firm's SG&A. Given that firms do not publicly disclose COS as a separate item, existing research views advertising and sales force spending as indicators of the selling-related expenditures of the firm (Kim and McAlister 2011). To adopt a more comprehensive measure of selling-related expenses, studies also use COMPUSTAT's reported SG&A is also frequently utilized. Although these studies typically exclude R&D expenses in their measure (e.g., Mizik 2010), a firm's SG&A still consists of several other expense items that might not be relevant to its COS (Im, Grover, and Teng 2013; Lee et al. 2015). In fact, we find that using aggregated SG&A-based measures of selling-related expenses can result in an overestimation of more than 20% when compared with our measure of COS (see Table 2). Importantly, our approach also has sufficient face validity as we find that in firms for which more detailed costs are available, our measure of COS can discriminate between firms with higher versus lower costs (see Web Appendix A, Table A2).

Furthermore, by presenting an approach to isolate the "selling" component of a firm's SG&A, we also augment recent research that examines the suitability of using SG&A to capture different marketing-related concepts (Ptok, Jindal, and Reinartz 2018). Specifically, our findings indicate the need for a more nuanced approach to the use of SG&A in future research. Whereas the utilization of our approach in decomposing a firm's SG&A is beneficial for studies that aim to investigate the antecedents or consequences of COS or its specific components (i.e., cost of persuasion and convenience), it may not be necessary for instances where COS is to be included as a covariate.

Table 6. Marginal Effects of Customer Satisfaction on Components of Future COS Across Changes in the Moderating Variables.

		Marginal Effects			
		Components of COS			
		Cost of Persuasion		Cost of Convenience	
		in %	Dollar Value (In Millions of USD)	in %	Dollar Value (In Millions of USD)
Main Effect					
Customer satisfaction	One-point increase	−.421*	**−$105.681**	−.120**	**−$30.028**
Moderating Effect of Strategic Focus					
Firm diversification	Low	−.312	−$78.331	−.136**	**−$34.182**
	High	−.548**	**−$137.618**	−.100*	**−$25.178**
	High − low	−.236***	**−$59.287**	.036*	**$9.003**
Moderating Effect of Strategic Flexibility					
Capital intensity	Low	−.522**	**−$131.163**	−.114**	**−$28.563**
	High	−.314	−$78.869	−.126**	**−$31.568**
	Low − high	−.208***	**−$52.294**	.012	$3.005
Financial leverage	Low	−.455**	**−$114.325**	−.117**	**−$29.410**
	High	−.395*	**−$99.353**	−.121**	**−$30.480**
	Low − high	−.060*	**−$14.971**	.004	$1.070
Moderating Effect of Operating Environment					
Industry concentration	Low	−.505**	**−$126.788**	−.081	−$20.469
	High	−.354	−$88.875	−.150**	**−$37.637**
	Low − high	−.151***	**−$37.913**	.068*	**$17.167**
Industry growth	Low	−.403*	**−$101.293**	−.112*	**−$28.126**
	High	−.439**	**−$110.234**	−.127**	**−$32.000**
	High − low	−.036*	**−$8.941**	−.015**	**−$3.875**
Industry labor intensity	Low	−.386*	**−$96.876**	−.124**	**−$31.216**
	High	−.422*	**−$106.070**	−.119**	**−$29.975**
	High − low	−.037**	**−$9.194**	.005	$1.241

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

Notes: Two-sided tests of significance. High (low) = the marginal effects of customer satisfaction on future cost of persuasion (convenience) when the corresponding moderating variable is high (low); low − high = difference in the marginal effects of customer satisfaction on future cost of persuasion (convenience) when the corresponding moderating variable is low versus when it is high; high − low = difference in the marginal effects of customer satisfaction on future cost of persuasion (convenience) when the corresponding moderating variable is high versus when it is low. We identify the moderating variable to be high (low) if its value is equivalent to 80th (20th) percentile value of the distribution of the corresponding variable within our sample of 1,207 observations from 128 firms. We multiply the marginal effects by 100 for ease of interpretation and report their dollar values in millions of dollars. We derive the dollar values of the marginal effects by multiplying the marginal effects with the average firm sales (i.e., before Winsorizing and mean-centering) within our sample of 1,207 observations from 128 firms. We compute the marginal effects using the results from Table 5 and dollar values for marginal effects that are significant ($p <$ .10, two-sided) are in boldface.

Managerial Implications

Given that cost reduction is a top priority for CEOs (PwC 2018), marketing managers are often pressured to produce the same product-market outcomes at lower costs (Katsikeas et al. 2016). Thus, our findings have direct managerial implications. In particular, the economic significance of customer satisfaction's effect on COS has direct communication implications for senior marketing managers as we find that a one-point increase in ACSI customer satisfaction score on a 100-point scale lowers future COS by almost US$130 million for an average firm in our sample. Building on the results of the post hoc analyses, we also derive the dollar values of the impact of customer satisfaction for the specific components of COS. As illustrated in Table 6, higher customer satisfaction can lead to an approximate decrease of US$100 million in the future cost of persuasion and US$30 million in the future cost of convenience. These findings are of direct importance to CMOs as they can now articulate the economic value of customer satisfaction for reducing future COS to internal and external constituents. This is especially crucial from an internal perspective as prior research suggests that customer-satisfying executives are often underappreciated (Huang and Trusov 2019). In this way, CMOs can now incorporate our findings in their communications to the CEO and the chief financial officer to underscore the economic value of customer satisfaction.

From an external perspective, CMOs can use our findings to articulate customer satisfaction as a leading indicator of lower future COS values and can disclose it to investors and financial analysts who closely watch COS and its components. As such, our results complement recent work that encourages the incorporation of a customer lifetime value approach to firm valuation (McCarthy and Fader 2018). Indeed, a direct implication for consulting firms and analysts that use the customer lifetime value approach for firm valuation is that their models should account for the effects of customer satisfaction on future COS.

Results of our contingency framework also identify specific conditions under which senior managers can expect higher customer satisfaction to result in a higher or lower reduction in the future COS of the firm. In addition, these findings also have direct implications for firm valuation models, as they highlight critical contingencies.

We find that the negative impact of customer satisfaction on the future cost of persuasion is stronger for more diversified firms, as they can enjoy almost US$60 million more in cost savings (see Table 6). In contrast, the cost savings in terms of the future cost of convenience is approximately US$9 million lower for more diversified firms (see Table 6). This suggests that despite the cost savings in terms of the future cost of persuasion, more diversified firms struggle to leverage the benefits of higher customer satisfaction to lower their future cost of convenience. A direct implication for managers in these firms is to evaluate their formal and informal mechanisms for sharing customer insights relating to the provision of convenience. Such an exercise could identify specific steps that they can take to enhance the effectiveness of customer satisfaction in lowering the future cost of convenience.

We also find that the negative impact of customer satisfaction on the future cost of persuasion is weaker for firms with higher capital intensity. In fact, the difference in cost savings can be more than US$50 million (see Table 6). To overcome this relative disadvantage, managers in such firms can conduct a cost-benefit analysis to explore potential payoffs from increasing the salience of their positive word of mouth for prospective customers and from increasing customer-facing opportunities for their employees. Similarly, whereas managers in firms with higher financial leverage are less likely to utilize benefits of customer satisfaction due to urgent financial pressures, our results indicate that they should carefully assess whether their current systems and procedures are creating impediments to utilizing the benefits of customer satisfaction. It is plausible that due to managerial attention being diverted to servicing high levels of debt, resource allocation to selling activities are following suboptimal routines that do not consider higher levels of customer satisfaction.

Our findings for firms' operating environments also bring to fore the nuances of the effect of customer satisfaction on COS and its components. First, the variance in the effect of customer satisfaction on COS and its components across the three industry conditions are of direct importance for the valuation models of financial analysts and investors that seek to understand the future COS for firms in such industries. Second, given that the received view is that the effect of customer satisfaction on financial performance is expected to be weaker in less concentrated industries (Anderson, Fornell, and Mazvancheryl 2004), our findings alert managers to the financial benefits of customer satisfaction especially in terms of the lower future cost of persuasion in less concentrated industries as it can amount to almost US$40 million more in cost savings (see Table 6). At the same time, the weaker negative effect of customer satisfaction on the future cost of convenience in such industries suggests that managers will also need to reevaluate their efforts in terms of how they use their understanding of customers to allocate their spending in their provision of convenience.

Finally, the variation in the effects of customer satisfaction on COS and its components across industry growth and labor intensity alert managers to reevaluate their mechanisms for allocating resources in selling efforts. For example, managers of firms with higher customer satisfaction in industries with lower growth and labor intensity should carefully consider whether they are overinvesting in selling efforts and not utilizing the benefits afforded by higher customer satisfaction.

Limitations and Further Research

The current study not only presents the first step in understanding the effect of customer satisfaction on future COS but also offers several avenues for further research. First, more research is required to establish the generalizability of our results beyond the ACSI database as it comprises mainly large business-to-consumer firms that are publicly listed in the United States. There might exist differences in customer satisfaction across countries and cultures resulting in differing cost advantages (Morgeson et al. 2011). Second, given that firms are aware that ACSI tracks the satisfaction of their customers, it is possible for firms in the ACSI data set to be more conscious about their customer satisfaction levels compared with those that are not. As such, future research should explore the impact of customer satisfaction across a larger sample of firms. Third, prior research has suggested that some aspects of selling-related expenses can, in turn, also have an impact on higher customer satisfaction (Mittal et al. 2005). For example, an advertising strategy that conveys higher quality could influence customer expectations and, therefore, customer satisfaction. As such, research is needed to examine specific sales efforts that are likely to have a cyclical relationship with customer satisfaction.

Fourth, our post hoc analyses suggest that while the impact of customer satisfaction on the future cost of persuasion is largely consistent with the proposed hypotheses, those for its impact on the future cost of convenience are significantly different. As such, by decomposing COS into more components, it is possible to also identify other potential differences in the impact of customer satisfaction on the different components of COS. Fifth, given that firms often engage in initiatives to improve customer satisfaction (Safdar and Pacheco 2019), and that reducing costs is a critical concern for CEOs (PwC 2018), more research is required to explore the effects of customer satisfaction on other cost related concepts. Finally, future research can also build on the current study to examine the cost implications of other marketing assets such as brand licensing.

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