**The contribution of managerial ability on customer satisfaction: An empirical investigation**

Abstract

The study empirically examines the effects of managerial ability on customer satisfaction, as well as the role of firm-level and industry-level moderators on the relationship. The effect of customer satisfaction on firm value is also investigated. Managerial ability is assessed as the residual remaining after accounting for the effects of seven key financial variables, while customer satisfaction is derived from the ACSI panel data. The results demonstrate that managerial ability positively affects ex-post customer satisfaction, indicating that more capable managers are better able to satisfy their customers. In turn, customer satisfaction directly influences firm value, as measured by Tobin’s q. In terms of moderators, non-service firms more strongly regulate the managerial ability-customer satisfaction link; advertising expenditure and competitive intensity have insignificant roles to play.

KEYWORDS:Customer satisfaction; managerial ability; firm value; marketing-finance interface; theory of self-determination

**Summary statement of contribution:**

Underpinned by the theory of self-determination, this research contributes to the literature of marketing and finance by empirically examining the relationship between managerial ability and customer satisfaction, which in turn is posited to affect firm value using Tobin’s q. Firm-level and industry-level variables are suggested as moderators of the managerial ability-customer satisfaction link. Our research enhances understanding of the impact of managers’ ability on marketing and answers the call for an increased understanding of marketing’s interface with other business functions.

**Introduction**

Customer satisfaction adds value to companies in multiple ways and is essential for the creation of corporate wealth. Satisfied customers lead to less customer defection, higher customer retention (Towler et al., 2011), increased customer expenditures (Ahearne et al., 2005), and positive word-of-mouth, among other benefits (Curtis et al., 2011; Homburg et al., 2005). The contribution of customer satisfaction to important metrics of firms' valuations like stock return, Tobin's q, and market-to-book ratio is well documented (Aksoy et al., 2008; Anderson et al., 2004; Fornell, 2001; Fornell et al., 2006; Ittner & Larcker, 1998). In this way, customer satisfaction carries important bottom-line implications for businesses, and contributes to the value of growth options, compelling managers and investors to pay great attention to customer satisfaction (Anderson et al., 2004).

The literature suggests that superior organisational performance results from the coordinated activation of resources and/or competencies that create greater value for customers than competitor firms (e.g., Freiling & Fichtner, 2010; Sanchez & Heene, 1997; Wernerfelt, 1984). Various strategic management frameworks emphasise employees’ importance to an organisation’s strategic success (Wright et al., 2001); indeed, human capital is the core organisational resource capable of deploying the competencies needed to gain a sustainable competitive advantage. Considering the existing literature on this topic, Holcomb et al. (2009) argue that scholars should consider the managerial actions taken to create and sustain competitive advantage. Our research objective is to address this void in the literature by focusing on managerial attributes as an intangible asset that generates customer value.

Currently, although both theory and empirical investigations in the marketing-finance literature support the link between customer satisfaction and value creation, little is known about whether the firm’s specific managerial attributes contribute to customer satisfaction and whether certain firm and market characteristics may moderate that association. The literature on customer satisfaction largely focuses on its pecuniary benefits, primarily firm value (e.g., Aksoy et al., 2008; Anderson et al., 2004; Gupta et al., 2004; Gruca & Rego, 2005), and the benefits it creates at the managerial level, i.e., chief executive officer (CEO) bonuses (O’Connell & O’Sullivan, 2011). However, there is yet another emerging branch of the literature starting to shed light on the extent to which managerial attributes define customer satisfaction. Basuroy et al., (2014), for example, investigate how CEO compensation packages might include incentives to increase customer satisfaction and to, therefore, enhance firm value. Our research is more closely aligned with this nascent body of literature.

Many organisational factors that may affect customer satisfaction, such as company size and the competitive market structure, result from the company's long-term strategic choices and market positioning but offer little flexibility to impact customer satisfaction in the short run. Conversely, customer satisfaction issues resulting from day-to-day operational decisions could be addressed by more skilled managers to facilitate a competitive advantage. Thus, we empirically examine the relationship between managerial ability and customer satisfaction, hypothesizing that executives with higher managerial expertise are more knowledgeable about their business, leading to higher customer satisfaction. According to Demerjian et al. (2012), managerial ability is exemplified by those managers who “better understand technology and industry trends, reliably predict product demand, invest in higher value projects, and manage their employees more efficiently than less-able managers” (page 1229).

We also contribute to the customer satisfaction literature by investigating firm-level and industry-level moderators. Specifically, we examine potential moderators, such as advertising expenditure, type of firm (service versus non-service), and intensity of competition on the managerial ability-customer satisfaction link. The strength of the relationship between customer satisfaction and firm value, using Tobin’s q, is also tested. Our research enhances understanding of the impact of managers’ ability on marketing and answers the call for an increased understanding of marketing’s interface with other business functions (Kumar, 2015).

**Theoretical framework and hypotheses development**

***Conceptual framework***

Figure 1 provides the conceptual framework underpinning the influence of managerial ability on customer satisfaction. We propose that advertising expenditure, service firms, and competitive intensity will moderate the relationship between managerial ability and customer satisfaction. In addition, our framework includes a series of CEO-, firm-, and industry-level control variables that strengthen the rigor of logic and estimation. Finally, we link customer satisfaction to firm value employing Tobin’s q.

[INSERT FIGURE 1 ABOUT HERE]

***Theoretical foundation***

The marketing literature abounds with studies that explore the mechanisms through which customer satisfaction drives firm value (e.g., Berger et al., 2002; Gruca & Rego, 2005; Rust et al., 2004). Most relevant to this study is the theory of self-determination (SDT), which supports the directional link between managerial ability and customer satisfaction. Ryan and Deci (2000, p. 68) describe SDT as concerning “people's inherent growth tendencies and innate psychological needs that are the basis for their self-motivation and personality integration, as well as for the conditions that foster those positive processes”. Among those innate psychological needs are the needs for competence, relatedness, and autonomy (Ryan & Deci, 2000). Applying self-determined behaviour, the motivation of managers to succeed is nurtured by their independent and innate drive to prosper as theorised by SDT. This independent willingness to shine motivates highly skilled managers to refine existing processes or search for innovative methods to meet customer demands and improve their odds of success.

***Managerial ability and customer satisfaction***

In today’s hypercompetitive environment, the need to tailor products and service delivery to the needs and expectations of heterogeneous customers, require managers to employ domain-relevant skills, creativity, and motivation to personalise customer experiences (Amabile, 1996). While standardised or scripted work behaviours permit product quality (Gilson et al., 2005), they fail to account for idiosyncratic customer needs and, therefore, negatively affect customer satisfaction (Dong et al., 2015). Maximising customer satisfaction requires autonomy to deviate from the scripted work behaviour, which can be a risky undertaking, though the presence of highly skilled managers, in accordance with the theory of self-determination, serves to mitigate the risk. Our focus on managerial ability examines how highly skilled managers drive an organisation to emphasise creative performance or customisation of product delivery as strategic behaviour.

Great managerial ability serves as a starring role by directing floor-level operators and frontline employees to adopt the domain-relevant and creativity-related skills (i.e., the constitutive model of Amabile (1996)) required of a creative climate to internalise customer knowledge. Such a climate enables the firm, from top management to frontline employees, to be cognisant of customers’ concerns and to engage in a creative process (i.e., problem identification, information search, and solution generation; Martinaityte et al., 2019) focused on customer needs and expectations

The creative engagement process (Martinaityte et al., 2019), though, is resource intensive. Processes geared toward adopting multiple perspectives to customer problems, as well as the gathering and compilation of related information, and the process to generate consultative, creative, and novel solutions to gratify customers will turn inefficient if they consume excessive time and resources. Anderson et al. (1997) argue that customer satisfaction and productivity cannot move in unison in a business environment characterised by a great deal of customisation for customers’ sake; a contention supported by Rust et al. (2002) and Mittal et al. (2005). To keep the process meaningful, managers need to operate in an efficient manner whereby the marginal benefit from employing an additional unit of resource far exceeds its cost. By treating managerial ability as the ratio of outcome-to-inputs coupled with SDT, firms assure that the creative engagement process is conducted in a resource-efficient manner.

Additionally, whereas securing access to strategic and scarce resources is necessary for building customer satisfaction, the resources must be efficiently managed and synchronised to realise a competitive advantage, i.e., they call for managerial ability (e.g., Hansen et al., 2004; Holcomb et al., 2009; Kor & Mahoney, 2005). The importance of managerial ability to yield corporate welfare is documented by Demerjian et al. (2012); Demerjian et al. (2016); and Krishnan and Wang (2015).

Theoretically speaking, we define a thriving business as one that maximises customer satisfaction per unit of managerial deployment of the firm's resources. In other words, customer satisfaction is a direct function of managerial ability. Holding the firm constant, we hypothesise:

*Hypothesis 1*: Managerial ability is positively linked to customer satisfaction.

***Moderating factors***

While we propose that managerial ability directly influences customer satisfaction, we recognise that other factors may serve to enhance or suppress that primary relationship. Consequently, we next explore those key factors that may moderate the relationship between managerial ability and customer satisfaction.

**Advertising expenditure.** The amount of funds directed toward advertising the firm’s products has not been previously linked to managerial ability. Nonetheless, Ali Shah and Akbar (2008) argue that advertising expenditure is indicative of managerial confidence and intention to invest in the company. Managerial willingness to expend funds on advertising can also lead to competitive barriers to entry, better convey product differentiation to the market, and reduce price elasticity of demand (Jose et al., 1986).

Based on these previous findings, we consider that advertising expenditure assists in framing consumers’ perception of the firm and its products. Although the number of studies linking advertising and customer satisfaction is scant, the work of Lee and Park (2015) suggests that consumers exposed to advertising prior to responding to a customer satisfaction survey are more likely to provide higher ratings. Advertising also has been found to influence customer satisfaction by attenuating consumers’ attitudes toward the brand (Gashti & Chirani, 2017; Kursunluoglu, 2014). Finally, advertising expenditure helps to reinforce perceived performance and the user experience, while repetitive advertising is associated with brand or service quality and heightened customer expectation (Ha & Muthaly, 2008).

Organisations utilize advertising to project a positive image of their activities, products, brands, or services to attract customers’ attention, to potentially influence consumers’ perceptions, and to stimulate purchase intent (e.g., Gashti & Chirani, 2017). The larger the advertising expenditures, the greater the effort to generate positive customer perceptions. In alignment with Kursunluoglu (2014) and Gashti and Chirani (2017), positive customer perceptions should yield satisfied customers. We, therefore, hypothesise that larger advertising expenditures will serve to increase the strength of the managerial ability-customer satisfaction relationship.

*Hypothesis 2*: The advertising expenditure of the organisation positively moderates the relationship between managerial ability and customer satisfaction.

**Type of firm.** Evaluating the proficiency of management varies by the type of goods the company sells. In service industries, management ability is assessed by knowledge, professional specialization, flexibility, new market entry, innovation, and the competency enhancement of human capital (e.g., Mills et al., 1983; Sahin, 2011). In non-service industries, managers are assessed by their ability to achieve financial outcomes and profit maximisation (e.g., Sahin, 2011).

Mascarenhas et al. (2006, p. 404) argue that firms “must deliberately design engaging experiences in what they produce, design and offer” to create bonds with customers that are difficult for competitors to replicate. Based on how managers are assessed differently in service and non-service organisations and based on the motivation of managers to succeed as proposed by the SDT, the ability to design the engaging customer experiences called for by Mascarenhas et al. (2006) is likely more readily achieved within a service firm. Certainly, the service industry is far more focused on differentiating and personalising customer experiences as part of the service in order to drive customer satisfaction (Sahin, 2011). On the other hand, the manufacturing of most products is standardised and not designed to be tailormade; that is, products meet the company’s “specification but not the consumer’s desires” (Alzaydi et al., 2018, p. 299; Moullin et al., 2011). Yet, when the goods are standardised, uniformity and productivity improvements may lead to higher quality products and fewer product defects, which in turn lead to fewer customer complaints and returns (Anderson, 1994). Given the standardised product nature of non-service firms, the supplier would also find it easier, and perhaps less expensive, to provide warranties. Indeed, it is not uncommon to find lifetime warranties provided on many standardised products.

Despite the ambivalence that the literature presents, we do expect that type of firm determines the degree of impact on the managerial ability-customer satisfaction relationship, with service firms having the strongest influence. Hence, we offer the following:

*Hypothesis 3*: Service firms will moderate the relationship between managerial ability and customer satisfaction.

**Competition intensity in the industry.** Limited work exists to compare managerial ability based on the market structure of the industry, that is, whether the industry is a monopoly or competitively intense. Goldfarb and Xiao (2011) find that experienced, better educated managers are more adept at understanding competitive behaviours within an industry and utilising appropriate strategic measures. However, Rowe (2001) suggests that managers involved in monopolies―for example, government bodies—are forced to focus only on financial outcomes and to repress the use of strategic measures. Monopolies, as Rowe (2001) notes, are perceived as less flexible and more resistant to change, so managers either ignore their strategic impulses or exit the monopoly. Consequently, Rowe (2001, p. 88) advances the perspective that managers within monopolies are valued for their “reliability, steadfastness, and loyalty, . . . rather than on creativity, innovation, and critical thinking” (quote derived from House, 1999). These prior works offer support for our supposition that the market structure of the industry may impact managerial ability.

Customer satisfaction plays a more prominent role in competitive markets than monopolistic ones. In competitive markets, customers can easily choose to patronise other firms, but in monopolistic markets, consumers' choices are greatly curtailed, and as such, customer dissatisfaction will not hurt the monopolist's cash flow (Luo & Homburg, 2007; Luo et al., 2010; Wallace et al., 2004). Dissatisfied customers will keep purchasing from the same firm if no exit or switching is possible (Rego, 1998).

Based on the Structure Performance (SCP) Paradigm, as explained by Rego (1998), the primary determinant of consumer welfare is market concentration. Market concentration is represented by the existence of a few firms sharing relatively high market share. This structure fosters collusion among firms in the industry, and the more concentrated the market, the lesser the degree of competition. The high market shares of a few firms reflect monopoly power, which hampers customer satisfaction because less value is offered for the money. In highly competitive markets, customers have many different options to compare firms; consequently, consumers may exhibit low brand loyalty and satisfaction. Moreover, a competitive market may lead managers to cut costs and have low marginal benefits to yield higher customer satisfaction. Additionally, a competitive market generates tiers of firms, including smaller second-tier firms that excel in service provision (Zeithaml, 2000). Thus, we hypothesise that the extent of competition, specifically more competitive industries, will increase the level of customer satisfaction. Thus, we propose:

*Hypothesis 4*: The more competitive the industry, the greater the moderating effect on the relationship between managerial ability and customer satisfaction.

**Customer satisfaction and firm value**

We round out our theoretical framework by proposing a relationship between customer satisfaction and firm value. In actuality, the impact of customer satisfaction on firm value is very well documented in the literature (Ambler et al., 2002; Basuroy et al., 2014; Bell et al., 2002; Berger et al., 2002; Blattberg & Deighton, 1996; Bolton et al., 2004; Gruca & Rego, 2005; Hogan et al., 2002; Rust et al., 2004), and no longer a central theme of current research. However, for the sake of offering a fuller depiction of the marketing-finance interface in this study, we offer:

*Hypothesis 5*: Customer satisfaction is positively related to firm value.

**Data and summary statistics**

***Data***

Panel data across a variety of firms from multiple sources were collected. We use the American Customer Satisfaction Index (ACSI) as our proxy for customer satisfaction. ACSI is a cross-industry measure of the satisfaction of U.S. household consumers with the quality of products and services offered by both foreign and domestic firms with significant share in U.S. markets. It is based on an annual survey of roughly 500,000 customers, covering more than 400 companies in 46 industries and 10 economic sectors. Indexes are reported on a 0~100 scale. Covering industries of retail, travel, energy utilities, healthcare, consumer shipping, telecommunication, restaurant, manufacturing, finance and insurance, e-business and government, ACSI has been extensively used in academic research. For a detailed explanation, including the economic significance of ACSI, see Fornell et al. (1996).

The financial and CEO data are obtained from Standard and Poor’s (S&P’s) Compustat and ExecuComp databases, respectively. Only brands in the ACSI that could be traced to companies listed in Compustat are retained for analysis. We manually match the ACSI brands to Compustat firms and one firm may be matched to multiple brands. In such cases, we compute the average ACSI using all the firm’s brands and treat the average number as the overall customer satisfaction numeral for the firm (e.g., Tuli & Bharadwaj, 2009). Since we aim to examine the relationship between customer satisfaction and managerial ability, we require that a firm must have financial and CEO data, managerial ability data, and customer satisfaction data to be included in the final sample.

As a result, the final sample includes 1,321 firm-year observations of 139 unique firms from 1995 to 2016, a 22-year time-period. The sample distribution by year and by the Fama-French 48 sector classification is provided in Table 1. The sample is almost equally distributed across the years though there is a gradual increase in the number of observations over time. In terms of industry distribution, we find RTAIL (retail), FOOD (food products), MEALS (restaurants, hotels, and motels), and TRANS (transportation) to be the leading ones. It is important to note that the dataset derived from matching ACSI brands, Compustat data, and managerial ability data covers multiple firms over time; however, because not all firms are included in ACSI, Compustat, and managerial ability data every year, we report the number of firms corresponding to the number of years of data available in the sample. For example, twenty firms (14.39% of the sample) have only one year of data, while seventeen firms (12.23%) have more than 20 years of data.

[INSERT TABLE 1 ABOUT HERE]

***Managerial ability***

For the purpose of this study and in accordance with Demerjian et al. (2012), managerial ability is specified as the residual remaining after accounting for the effects of seven variables, i.e., Net Property, Plant, and Equipment (PP&E); Net Operating Leases; Net Research and Development (R&D); Purchased Goodwill; Other Intangible Assets; Cost of Inventory; and Selling, General, and Administrative Expenses (SG&A) on firm’s revenue. As such, managerial ability is wide-ranging and all-encompassing in terms of serving as a broad index for other firm variables excluded from the preceding variables.

The current study uses Demerjian et al.’s (2012) measure of managerial ability,[[1]](#footnote-1) Cited over 775 times, this measure is widely used as a proxy for managerial ability in numerous management and marketing-related studies, including innovation (Chen et al., 2015); product market competition (Yung & Nguyen, 2020); sustainability (Sun, 2017), corporate social responsibility (Yuan et al., 2019), and brand innovation (Bereskin et al., 2020), among many others.

The Demerjian et al. (2012) measure of managerial ability employs a Data Enveloped Analysis (DEA-based) measure of total firm efficiency by gauging how efficiently a firm uses seven variables to generate sales revenues. Specifically, total firm efficiency is obtained by maximising the following ratio for each firm within an industry grouping: , where *CoGS* represents cost of goods sold, *SG&A* represents selling, general and administrative expenses, *PPE* represents property, plant & equipment, *OpsLease* represents operating leases, *R&D* represents research and development expenditure, *Goodwill* represents acquired goodwill, and *OtherIntan* represents other intangible assets. For each firm within each industry, weights allocated to the output measures and each of the input measures are computed in a way that maximises the ratio of output-to-input. The derived weights become the optimal weights, which are then multiplied by the corresponding output and input quantities to obtain a value for the ratio of output-to-input for every firm. The firms are subsequently ranked within their respective industries based on the value of the ratio of output-to-input. The highest-ranked firm is assigned a score of 1, and the subsequent firms' values are divided by that of the highest-ranked firm. This process results in an ordinal ranking of firms within their industries.

The resulting efficiency measure from the above process represents the contributions of both firm-specific factors and managerial ability (see Equation 1). When the effects of the firm-specific factors are removed from the efficiency measure, the resulting figure proxies for managerial ability (see Equation 2), and the residual approximates manager-specific efficiency (i.e., managerial ability (ABILITY) in Equation 3).

|  |  |
| --- | --- |
| Efficiency = f {Firm-specific factors, Managerial ability} | (1) |
| Managerial ability = Efficiency *minus* Efficiency due to firm-specific factors | (2) |

To obtain a pure measure of managerial ability, Demerjian et al. (2012) estimate the following Tobit regression that controls for efficiency due to firm-specific factors:

(3)

The variable ABILITY is the residual from a second stage Tobit regression of total firm efficiency after controlling for seven firm-specific factors. The higher the value of the residual, the more revenue per unit of resource is associated with the firm's managers. After merging the above-mentioned datasets with the downloaded ABILITY dataset (see Appendix), we derive a final sample of 139 unique US publicly-listed firms from 1995 to 2016 with complete data in Compustat, ExecuComp, and the Thomson Reuters database of institutional ownership.

***Firm value***

In past studies, firm value is measured using various metrics, such as stock return, Tobin's q, and market-to-book ratio (Anderson et al., 2004; Fornell, 2001; Fornell et al., 2006; Gruca & Rego, 2005; Ittner & Larcker, 1998). Among them, Tobin’s q is one that is commonly used (e.g., Basuroy et al., 2014). Tobin’s q is the ratio between the total market value of the firm’s capital and the replacement costs of that capital (Kaldor & Pasinetti, 1966; Tobin & Brainard, 1977). We obtain the data to calculate Tobin q ratio from the Compustat database. The formula for calculating Tobin’s q is provided in the Appendix.

***Other control variables***

To rule out alternative explanations of our proposed managerial ability-customer satisfaction relationship and the proposed moderators of this relationship, we have included three layers of controls at the CEO, firm, and industry levels. CEO-level controls include (1) CEO characteristics, such as CEO tenure and overconfidence, and (2) corporate governance, such as whether a CEO is also the chair of the board, percentage of shares held by institutional ownership, and percentage of shares held by institutional blockholders. Similar to Malshe and Agarwal (2015), we also control for firm-level variables including firm size, R&D expenditure, operating cash flow-to-asset ratio, leverage, and sales growth rate. All the multiple regression analyses account for year- and industry-fixed effects and clustered standard errors among observations by each firm.

**Results**

***Sample descriptive statistics***

The definition of the variables is provided in the Appendix to the paper. In Table 2, Panel A provides summary statistics of the variables and Panel B depicts the correlation matrix. As per theACSI.org website: “The American Customer Satisfaction Index uses customer interviews as input to a multi-equation econometric model developed at the University of Michigan's Ross School of Business. The customer satisfaction (ACSI) index score is calculated as a weighted average of three survey questions that measure different facets of satisfaction with a product or service.”[[2]](#footnote-2)

The mean and median ACSI scores of the companies included in this study are close to 78 out of 100 with a standard deviation of 6. This customer satisfaction score is similar to the mean score for customer satisfaction of 76.37 with a standard deviation of 6.17 reported in Gruca and Rego (2005). The skewness of the distribution in this study is close to 0, while the kurtosis is close to three, suggesting that the distribution approximates a normal one. The ACSI variable was transformed using logarithms since it is positive and tends to be a large integer number relative to the other variables in the regression analyses. The mean and median ABILITY scores are 0.082 and 0.052, respectively. For the sake of comparison, Dermejian et al.’s (2012) mean value of managerial ability is -0.004, and the median is -0.013.

[INSERT TABLE 2 ABOUT HERE]

***Baseline regressions***

Hypothesis 1 posits that managerial ability has a positive impact on customer satisfaction. To test it in baseline regressions, we first regress customer satisfaction on managerial ability while controlling for other firm characteristics at the CEO, firm, and industry levels. We also control for year-fixed effects and industry-fixed effects and make use of clustered standard errors among observations by each firm. The independent variables are lagged by a year. We report all baseline regression results in Table 3 and present two different models, i.e., the baseline OLS regression in model 1, and Models 2 and 3 for robustness checks.

[INSERT TABLE 3 ABOUT HERE]

In Table 3 model 1, the 0.065 coefficient of ABILITY is statistically significant, suggesting that a one standard deviation increase in managerial ability (ABILITY) is associated with approximately a ((exp (0.065) -1) × 0.177) 1.2% increase in customer satisfaction, where 0.177 is the standard deviation of managerial ability. Using the baseline regression model 1 in Table 3, this finding is consistent with Hypothesis 1, i.e., managerial ability positively associates with customer satisfaction.

Table 3 model 1 reveals other significant findings. The coefficient of SIZE is negative. It suggests that larger firms are associated with less customer satisfaction than smaller firms. The coefficient of XRD is negative, which suggests that the higher the ratio of research and development expenditure-to-total assets, the lower the firm's customer satisfaction.

The coefficients of OPERCF and SALEGR are positive. They represent the ratio of operating cash flows-to-total assets and the yearly percentage increase in sales revenue, respectively. The positive coefficients suggest that higher values of these two variables are associated with higher customer satisfaction. Nonetheless, there may be confounding effects in the sense that some of these associations may result from customer satisfaction in the first place. As such, we address issues with omitted variables and endogeneity in the subsequent sections.

***Robustness checks***

**Addressing omitted variables bias - Chief Executive Officer (CEO) characteristics and corporate governance characteristics.** To address omitted variable bias, we control for the personal characteristics of the chief executive officer (CEO), including their tenure and a measure of CEO overconfidence, as explained in the Appendix. We augment the model by including CEO and corporate governance characteristics in Models 2A, 2B, 3A, and 3B. A firm's managerial ability may be associated with the CEO's tenure, and with tenure comes experience and a better appreciation of customer needs. In Model 2A, the addition of the TENURE of the CEO as an independent variable does not affect the sign and significance of the ABILITY coefficient.

Customer satisfaction can be the result of CEO overconfidence. This overconfidence is derived from years of serving customers and the manager's ability to meet customer demands. Indeed, in Model 2B, the coefficient of OVERCONFIDENT is positive and statistically significant, suggesting a positive association between CEO overconfidence and customer satisfaction. Importantly though, the coefficient of ABILITY remains positive and marginally significant. In the presence of the CEO characteristics, managerial ability is positively and statistically correlated with customer satisfaction. The coefficient of the variable ABILITY remains positive in the overall sample (see models 2A and 2B in Table 3).

Besides CEO characteristics, the residual from the Tobit regression of firm efficiency may also be capturing omitted corporate governance factors. To account for this possibility, we control for such factors, i.e., DUALITY and INSTBLOCK, as explained in the Appendix. We extend the baseline regression with characteristics capturing agency issues in Models 3A and 3B. The positive and statistically significant relationship between ABILITY and customer satisfaction is robust to these variables' inclusion.

**Addressing endogeneity.** This section focuses on the endogeneity problem of managerial ability. First, firms with higher customer satisfaction will appeal to talented and skilful managers, and vice versa. To address this self-selection bias and the true effect of managerial ability on customer satisfaction, we conduct a Heckman's (1979) two-stage analysis and report the findings in Table 4.

To address exclusion restrictions of the Heckman self-selection model, we follow Bui et al. (2018) and include the percentage of the population holding a college degree in the state where a given firm is headquartered (COLLEGE DEGREE) as the instrument variable for managerial ability in the first stage regression. We obtain educational attainment data from the American Community Surveys available on census.gov. Bui et al. (2018) suggest that COLLEGE DEGREE meets the exclusion restriction as an instrument variable for two reasons. First, CEO ability is positively related to their educational background. Secondly, firms are more likely to hire CEOs from the local managerial labor pool (Yonker, 2017). Thus, COLLEGE DEGREE is a reasonable proxy for the local managerial labor pool's quality and presumably has a positive association with its managerial ability. At the same time, COLLEGE DEGREE as a state-level demographic variable should not directly affect a specific firm's customer satisfaction. Thus, intuitively, COLLEGE DEGREE meets the requirement of exclusion restrictions.

Additionally, Certo et al. (2016) suggest using the rho (e.g., the correlation between the error terms from the first stage regression and the second stage regression) and the pseudo R-squared in the first stage regression to gauge the exclusion restriction strength. While they do not provide the exact values of rho and pseudo R-squared as indications for strong exclusion restriction, they suggest larger values represent stronger exclusion restrictions. In Panel A of Table 4, we report the result from the first stage regression of the probability of a firm hiring a skillful manager (e.g., CEO with an ability score higher than the industry median in the past three years). The rho value is -0.978, and the Pseudo R-squared is 0.30, suggesting strong exclusion restrictions empirically. The coefficient on the COLLEGE EDUC variable is positive and significant at the 1% level.

[INSERT TABLE 4 ABOUT HERE]

The remainder independent variables are the lagged customer satisfaction (L.ACSI), lagged firm size (L.SIZE), lagged cash-to-asset ratio (L.CASH), lagged ROA (L.ROA), lagged leverage (L.LEVERAGE), and lagged institutional ownership (L.INSTOWN). Using these independent variables, we test the proposition that well-established (SIZE) profitable (ROA) firms that are not under any financial distress (CASH and LEVERAGE) and that benefit from a robust corporate governance structure (INSTOWN) would appeal to managers with high ability (ABILITY).

In Panel A of Table 4, we find that large (SIZE), cash-rich (CASH), and well-governed (INSTOWN) firms, respectively, appeal to managers with high managerial ability. The coefficients of SIZE, CASH, and INSTOWN, i.e., our proxies for firm size, profitability, and corporate governance, respectively, are positive and statistically significant.

We obtain the predicted probability from the first stage regression and calculate the inverse Mills ratio. We then include the inverse Mills ratio in the second stage regression of customer satisfaction. In Panel B of Table 4, we report the results from the second stage regression of customer satisfaction. The ABILITY variable is positive and significant in the presence of the inverse Mills ratio variable, confirming the effect of managerial ability on customer satisfaction. Despite the likelihood that companies self-select their managers' ability based on their characteristics, we find a positive association between current levels of managerial ability and ex-post measures of customer satisfaction

In Panel B, we also report the variance inflation statistics (VIF) of each independent variable in the second stage regression. Lennox et al. (2012) point out that failure to meet exclusion restrictions in the first stage regression can cause multicollinearity in the second-stage regression. All the VIF statistics reported in Panel B are smaller than 1.7. The average VIF statistics is 1.3, suggesting no potential multicollinearity issue.

Certo et al. (2016) suggest that Heckman models can only account for sample-induced endogeneity, not for other sources of endogeneity. They argue that two-stage least squared models can provide less biased estimates than Heckman models in the existence of other sources of endogeneity. As such, in Panel C of Table 4, we implement the two-stage least squared regressions where we obtain the predicted values from the first-stage regression and include them in second-stage regression instead of the raw values of ABILITY. In other words, the ABILITY variable in Panel C is the instrumented (predicted) ABILITY. The F -statistic of the Cragg and Donald test is 52.79\*\*\*, which rejects the null hypothesis that COLLEGE DEGREE is a weak instrument. Consistent with prior results, the ABILITY variable is positive and significant, confirming the effect of managerial ability on customer satisfaction.

***Moderating roles***

Hypothesis 2 predicts that advertising expenditure (XAD) plays a positive moderating role in the relationship between managerial ability and customer satisfaction. To test this effect, we perform a two-stage least-squared regression with moderating effects and present our findings in Table 5. The first stage includes the regression of customer satisfaction, and the second stage includes the regression of firm value measured by Tobin’s q.

In the first stage regression of customer satisfaction, we employ the median customer satisfaction of all other firms, excluding the firm in consideration, in the same industry in the same year (IND.ACSI.EXCL) as the instrument for the firm’s customer satisfaction. Intuitively, due to competition among firms in the same industry, customer satisfaction in a firm (ACSI) might be inversely related to customer satisfaction in other competitors in the same industry (IND.ACSI.EXCL). At the same time, customer satisfaction in other competitors in the same industry IND.ACSI.EXCL should not directly affect the valuation of the firm in consideration (e.g., TOBINQ – the dependent variable in the second stage regression) since investors value a firm based upon its fundamentals. Empirically, we report the F-statistics of the Cragg and Donald test for each of the models in Tables 5 and 6. The F-statistics are significant at the 1% level, which rejects the null hypothesis that IND.ACSI.EXCL is a weak instrument. We also report the Hansen J-statistics, which jointly tests correct model specification and valid instrument overidentification restrictions. Valid instrumentation requires that the J-statistic be consistent in not rejecting the null hypothesis. The reported Hansen J-statistics are insignificant, allowing us to accept the null hypothesis of correct model specification and valid instrument overidentification restrictions.

[INSERT TABLE 5 ABOUT HERE]

In Stage 1 regressions reported in Tables 5 and 6 below, the coefficient on the IND.ACSI.EXCL is negative and significant, suggesting that customer satisfaction in a firm (ACSI) might be inversely related to customer satisfaction in other competitors in the same industry (IND.ACSI.EXCL). In Stage 2 regressions, the coefficient on the ACSI variable is positive and significant at the 1% level, suggesting higher customer satisfaction is associated with higher firm valuation. The results are consistent across all subsamples. With regard to Hypothesis 2, the advertising expenditure to assets ratio (XAD) on its own has no significant effect on customer satisfaction. Additionally, the coefficient of the interaction term of ABILITY × XAD in Panel A of Table 5 is also insignificant. Thus, the results do not support Hypothesis 2.

Hypothesis 3 predicts that service firms moderate the impact of managerial ability on customer satisfaction. To test Hypothesis 3, the approach of service versus non-service subsamples is selected in the context of related research on similar types of control variables to avoid an unmet homogenous assumption of the remaining control variables in the regression model with a dummy variable interaction (Yip and Tsang, 2007) and maintain the effect size (Aiken and West, 1991).

Hypothesis 3 argues that the ability of managers to influence customer satisfaction would differ based on whether the firm is classified as a firm providing a service or goods (i.e., non-service). As such, we split the sample into two, i.e., service firms versus non-service firms, and present the findings on the subsamples in Panels B and C of Table 5. The coefficient of ABILITY is positive and statistically significant in both subsamples, a finding that strengthens the incremental benefit of high managerial ability on high customer satisfaction irrespective of the type of product- or service offerings.

We note that the size of the ABILITY coefficient is larger (i.e., 1.348) among non-service firms than service firms (i.e., 0.693). Because the moderating effects of the regressions in Table 5 are insignificant, a two-stage least squared regression without moderating effects in Table 6 is used for additional testing of Hypothesis 3. In Table 6, the coefficient of ABILITY for the subsample of service firms in Panel B is positive and statistically significant (0.666, *p* < 0.01), but lower than the positive coefficient for the subsample of non-service firms (1.342, *p* < 0.01). If any, we attribute the difference to the greater standardization available in the offerings of non-service firms, which allows the managers to apply their ability more consistently and produce high-quality products on a more reliable basis than a service firm.

[INSERT TABLE 6 ABOUT HERE]

Hypothesis 4 predicts that more competitive industries will have a greater impact on the managerial ability-customer satisfaction relationship. COMPETITION is assessed by the sales-based Herfindahl index wherein the lower the value, the greater the competition in the industry. As Table 5 of the two-stage least-squared regression with moderating effects reveals, the coefficient of ABILITY × COMPETITION in Panel A for the whole sample is insignificant. Thus, the results fail to support Hypothesis 4.

**Firm value**

Hypothesis 5 predicts that there is a positive impact of customer satisfaction on firm value. As the two-stage least-squared regression without moderating effects results in Table 6 illustrate, the coefficient of ACSI in stage 2 for panel A of whole sample is positive and significant (0.30, *p* < .01). Thus, the results support Hypothesis 5, i.e., the exists a positive association between customer satisfaction and firm value.

**Discussion and conclusions**

For more than 60 years, an expansive stream of marketing research has primarily focused on customer expectations, customer perceived quality, and customer disconfirmation as determinants of customer satisfaction (e.g., Anderson & Sullivan, 1993; Cardozo, 1965; Meng & Sego, 2020). Yet, while many studies have focused on these customer-level constructs, very few studies have delved into the effect of managerial ability on customer satisfaction. The study at hand seeks to address this gap in marketing knowledge and advance this nascent stream of research.

Underpinned by self-determination theory (SDT), this paper examines the effect of managerial ability on customer satisfaction with a company's products and services. Using panel data from COMPUSTAT's publicly traded companies and customer satisfaction data from the American Customer Satisfaction Index, we demonstrate that companies with higher managerial ability than those of their competitors are associated with ex-post greater customer satisfaction. The managerial ability-customer satisfaction relationship holds true for the total sample of firms, as well as when the data is split into service versus non-service firms. Our results are robust to alternative definitions of managerial ability and after addressing self-selection biases and controlling for multiple CEO and corporate governance features. This strong association between managerial ability and customer satisfaction also offers support for past studies such as Holcomb et al. (2009) and Wright et al. (2001), which advocate human capital as the core organisational resource necessary to employ the competencies required for sustainable competitive advantage, such as customer satisfaction. Boards of directors and shareholders are well served to ensure that their time and investments in firms are optimized by top executives who have the ability to shepherd the organisation's resources and competencies toward enhancing customer satisfaction.

This study also surfaced the effects of other firm-level variables on customer satisfaction. For example, the size of the organization was negatively related to customer satisfaction, suggesting that larger firms are associated with less customer satisfaction than smaller firms. This finding could be the result of several factors: (1) the likely greater number of product offerings by large firms, as well as less firm specialization, generating more product issues; (2) a more diverse customer base, which increases the likelihood of dissatisfied customers; and (3) more detached relationships with clients than found in smaller firms. Surprisingly, the ratio of R&D expenditures to total assets was also negatively related to customer satisfaction. Perhaps innovations lead to too many product or service offerings, not all of which may be to customers' full satisfaction. Alternatively, heavy investment in R&D may severely curtail the funding for direct customer interactions that would improve customer satisfaction. The ratio of operating cash flows-to-total assets and the yearly percentage increase in sales revenue were positively related to customer satisfaction. Thus, firms with liquidity and growth are more likely to be conducting business in a way that meets customer satisfaction.

The moderating variables produce some surprising results. Although we conjecture that higher advertising spend will strengthen the positive relationship between managerial abilities and customer satisfaction by improving customer perceptions, our results reveal that advertising expenditure has no impact. Peterson and Jeong (2010) shrewdly note that advertising expenditure alone may not improve the organisation's plight, as the creativity of the advertising is also key. Consequently, we conjecture that both advertising spend and creativity may be required to affect the managerial ability-customer satisfaction association; either one in isolation will be insufficient to enhance the relationship.

Competitive intensity also resulted in an insignificant effect on the linkage between managerial ability and customer satisfaction. While the result is not expected, it could be that managerial ability does not statistically differ between competitive versus monopolistic industries, and thus, the customer satisfaction levels are equivalent. Public utility boards may exert enough governance that common monopolies, such as utility companies, are forced to place greater emphasis on customer satisfaction. At the same time, competitive industries focus on customer satisfaction in order to remain profitable.

Another key finding from our study provides evidence of a significant, positive effect of non-service firms on the relationship between managerial ability to customer satisfaction. Although our dataset is somewhat limited by the number of service firms contained within, we speculate that the ability of service firms to individually personalise experiences readily and directly influences customer satisfaction. Indeed, research from Witell et al. (2001) indicates that the production and process practices of non-service firms indirectly affect customer satisfaction through a customer orientation philosophy; whereas, the customer and process practices of service organisations have a direct effect on customer satisfaction.

The finding that customer satisfaction positively influences firm value demonstrates the central role that customer satisfaction plays in the valuation of an organisation. For managers, especially those in non-service industries, this finding should entice them to direct their attention to customer satisfaction since firm financial performance is a key metric on which they will be evaluated (Sahin, 2011). Lastly, the strong association between customer satisfaction and firm value adds to the substantive body of previous findings in that stream (e.g., Basuroy et al., 2014; Bolton et al., 2004; Gruca & Rego, 2005; Rust et al., 2004).

Our findings offer theoretical implications. This paper is among the first to introduce managerial ability to the marketing literature, theorising and empirically testing a model based on the variables in the marketing-finance interface. This research also contributes to the value-adding literature on customer satisfaction to include intangible assets such as managerial ability, as well as its moderators. Overall, this study helps us develop a fuller picture of how managerial ability impacts customer satisfaction and how this relationship may be moderated.

This study suffers from a few limitations (i.e., sample selection and construct validity) and provides opportunities for future research. In the main, there is an absence of an overarching theory base that associates managerial ability with customer satisfaction. This paper uses self-determination (SDT) as a theory base. Nonetheless, more research is required to establish the channels through which managerial ability affects customer satisfaction. One such avenue could be based on human capital theory (Crook et al., 2011). As managers build up their human capital, they are able to make better business decisions that result in higher customer satisfaction. Future research could examine how the process of building human capital ―utilising proxies like top management experience―helps firms build customer satisfaction.

Another avenue for research is additional investigations of managerial ability on other marketing outcomes. There is such a paucity of marketing research that includes managerial ability that incorporating this construct in studies of customer orientation, brand equity, customer expectations, customer quality perceptions, and a product or service failure should be fruitful. Additionally, because customer satisfaction can, at times, be capricious, researchers may wish to examine managerial ability on the variability in customer satisfaction.

Academic investigators may also wish to further explore the moderators of the managerial ability-customer satisfaction relationship. For example, service firms could be classified by pure service and services bundled with goods to assess whether one group has a more significant moderating effect than the other. Finally, we previously noted that advertising expenditures do not affect the managerial ability-customer satisfaction relationship. However, future studies can include not only advertising expenditure but also advertising creativity, perhaps measured by Effies or other advertising awards, to ascertain the combined effect of advertising on the relationship between managerial ability and customer satisfaction.

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**Figure. 1.** Conceptual framework.

H5

Managerial ability

Control Variables:

* CEO-level controls
* Firm-level controls
* Industry-level controls controls
* Advertising expenditure
* Service firms
* Competition

H2 – H4

Firm value

Customer satisfaction

H1

|  |  |
| --- | --- |
| **Appendix** Variable definition | |
| *ACSI* | The overall consumption experience of customers surveyed in the ACSI from: <https://www.theacsi.org/>. |
| *LOGACSI* | Logarithm of the overall consumption experience of customers surveyed in the ACSI. |
| *ABILITY* | Managerial ability score as developed and provided by Demerjian et al. (2012). The data is downloaded from the following website:  <https://peterdemerjian.weebly.com/managerialability.html>. |
| *TENURE* | Logarithm of CEO tenure (in years) in the firm. |
| *OVERCONFIDENT* | Following Malmendier and Tate (2008), a CEO is defined as overconfident once he  postpones the exercise of vested options that are at least 67% in-the-money. The *OVERCONFIDENT* variable takes the value of one when the CEO is identified as overconfident, and zero otherwise. |
| *DUALITY* | Dummy variable equal to 1 for firms in which CEO is also the chair of the board and zero otherwise. |
| *INSTOWN* | Percentage of shares held by institutional ownership. |
| *LOG(FIRM AGE)* | The logarithm of the number of years of data for each firm in CRSP. |
| *INSTBLOCK* | Percentage of shares held by institutional blockholders. |
| *TOBIN’S Q* | The market value of equity plus the book value of assets minus the sum of book value of common equity and deferred taxes represent the market value of firm capital. The book value of assets represents the replacement cost of firm capital. |
| *ASSET* | Firm asset ($ million) |
| *MKCAP* | Market capitalisation ($ million) |
| *SIZE* | Natural logarithm of assets |
| *XAD* | Ratio of advertising expenditure to assets |
| *XRD* | Ratio of R&D expenditure to assets |
| *OPERCF* | Operating cash flow-to-asset ratio |
| *LEVERAGE* | Total debt-to-asset ratio |
| *SALEGR* | Sales growth rate |
| *SERVICE* | SIC codes are prescribed for each firm in Compustat. Indicators for firms in the service industry (including consumer durables, non-durables, wholesale, retail, and some services (laundries, repair shops) were assigned e Fama-French 5-sector classification available at: <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/changes_ind.html>. Following the practices of Giannetti et al. (2011) and Rauch (2009), two-digit SIC codes are used to classify service vs. non-service firms. |
| *COMPETITION* | Sales-based Herfindahl index indicating competitive intensity in the industry. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 1.** Sample distribution | | | | | | |
| ***Year*** | ***N*** | ***Percent*** |  | ***Industry by SIC Code*** | ***N*** | ***Percent*** |
| 1995 | 65 | 4.92 |  | Retail | 361 | 27.33 |
| 1996 | 56 | 4.24 |  | Food products | 166 | 12.57 |
| 1997 | 50 | 3.79 |  | MEALS (Restaurants, Hotels, Motels) | 112 | 8.48 |
| 1998 | 48 | 3.63 |  | Transportation | 108 | 8.18 |
| 1999 | 46 | 3.48 |  | TELCM (Communication) | 99 | 7.49 |
| 2000 | 44 | 3.33 |  | HSHLD (Consumer Goods) | 87 | 6.59 |
| 2001 | 50 | 3.79 |  | Business Services | 75 | 5.68 |
| 2002 | 50 | 3.79 |  | CLTHS (Apparel) | 62 | 4.69 |
| 2003 | 53 | 4.01 |  | Beer & Liquor | 54 | 4.09 |
| 2004 | 51 | 3.86 |  | Wholesale | 31 | 2.35 |
| 2005 | 55 | 4.16 |  | Automobiles and Trucks | 30 | 2.27 |
| 2006 | 54 | 4.09 |  | OIL (Petroleum and Natural Gas) | 24 | 1.82 |
| 2007 | 66 | 5 |  | CHIPS (Electronic Equipment) | 21 | 1.59 |
| 2008 | 68 | 5.15 |  | OTHER | 21 | 1.59 |
| 2009 | 68 | 5.15 |  | BOOKS (Printing & Publishing) | 16 | 1.21 |
| 2010 | 69 | 5.22 |  | SMOKE (Tobacco Products) | 13 | 0.98 |
| 2011 | 66 | 5 |  | Textiles | 13 | 0.98 |
| 2012 | 68 | 5.15 |  | Agriculture | 8 | 0.61 |
| 2013 | 65 | 4.92 |  | Computers | 7 | 0.53 |
| 2014 | 69 | 5.22 |  | STEEL (Steel Works etc.) | 3 | 0.23 |
| 2015 | 82 | 6.21 |  | Chemicals | 2 | 0.15 |
| 2016 | 78 | 5.9 |  | Electrical Equipment | 2 | 0.15 |
| Total | 1,321 | 100 |  | TOYS (Recreation) | 2 | 0.15 |
|  |  |  |  | DRUGS (Pharmaceutical Products) | 1 | 0.08 |
|  |  |  |  | FUN (Entertainment) | 1 | 0.08 |
|  |  |  |  | Healthcare | 1 | 0.08 |
|  |  |  |  | Machinery | 1 | 0.08 |
|  |  |  |  | Total | 1,321 | 100 |

|  |  |  |  |  |  |  |  |  |
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| **Table 2. Summary Statistics and Correlation Matrix** | | | | | | | | |
| ***Panel A - Summary Statistics*** | | |  |  |  |  |  |  |
| Variables | N | Mean | Median | Stdev | Skewness | Kurtosis | Min. | Max. |
| *ACSI* | 1,321 | 77.488 | 78.000 | 5.943 | -0.701 | 3.313 | 56.000 | 90.000 |
| *LOGACSI* | 1,321 | 4.347 | 4.357 | 0.079 | -0.928 | 3.842 | 4.025 | 4.500 |
| *ABILITY* | 1,321 | 0.082 | 0.052 | 0.177 | 0.548 | 2.672 | -0.272 | 0.637 |
| *TENURE* | 1,106 | 1.460 | 1.386 | 0.924 | 0.084 | 2.378 | 0.000 | 3.970 |
| *OVERCONFIDENT* | 892 | 0.689 | 1.000 | 0.463 | -0.819 | 1.671 | 0.000 | 1.000 |
| *DUALITY* | 1,321 | 0.977 | 1.000 | 0.149 | -6.408 | 42.057 | 0.000 | 1.000 |
| *INSTOWN* | 1,321 | 0.577 | 0.653 | 0.306 | -0.786 | 2.622 | 0.000 | 1.284 |
| *INSTBLOCK* | 1,321 | 0.129 | 0.099 | 0.138 | 1.266 | 5.179 | 0.000 | 1.071 |
| *SIZE* | 1,321 | 9.453 | 9.368 | 1.405 | 0.284 | 3.525 | 5.231 | 13.590 |
| *XAD* | 1,321 | 0.040 | 0.026 | 0.046 | 1.967 | 7.670 | 0.000 | 0.293 |
| *XRD* | 1,321 | 0.011 | 0.000 | 0.025 | 3.909 | 21.597 | 0.000 | 0.201 |
| *OPERCF* | 1,321 | 0.128 | 0.123 | 0.065 | 0.315 | 3.363 | -0.040 | 0.311 |
| *LEVERAGE* | 1,321 | 0.670 | 0.655 | 0.219 | 0.748 | 4.757 | 0.148 | 1.479 |
| *SALEGR* | 1,321 | 0.067 | 0.050 | 0.148 | 1.936 | 10.517 | -0.288 | 0.783 |
| *SERVICE* | 1,321 | 0.106 | 0.000 | 0.308 | 2.560 | 7.554 | 0.000 | 1.000 |
| *COMPETITION* | 1,320 | 0.200 | 0.150 | 0.173 | 1.938 | 7.604 | 0.027 | 1.000 |
| ***Panel B - Correlation matrix*** | | | | | | | | |
| Variables | Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | *LOGACSI* | 1 |  |  |  |  |  |  |
| 2 | *ABILITY* | -0.0811\* | 1 |  |  |  |  |  |
| 3 | *TENURE* | 0.0637 | -0.0189 | 1 |  |  |  |  |
| 4 | *OVERCONFIDENT* | 0.165\*\*\* | -0.054 | -0.0732\* | 1 |  |  |  |
| 5 | *DUALITY* | 0.0465 | -0.0414 | 0.0802\* | -0.0187 | 1 |  |  |
| 6 | *INSTOWN* | 0.0427 | -0.0971\*\* | 0.035 | 0.303\*\*\* | -0.0358 | 1 |  |
| 7 | *INSTBLOCK* | -0.0149 | -0.148\*\*\* | -0.0449 | 0.161\*\*\* | -0.00232 | 0.672\*\*\* | 1 |
| 8 | *SIZE* | -0.0914\* | 0.423\*\*\* | -0.00476 | -0.0218 | 0.00604 | -0.197\*\*\* | -0.361\*\*\* |
| 9 | *XAD* | 0.308\*\*\* | -0.110\*\* | -0.0762\* | 0.0205 | 0.0367 | 0.0559 | 0.0774\* |
| 10 | *XRD* | 0.162\*\*\* | 0.141\*\*\* | -0.0579 | -0.0809\* | -0.147\*\*\* | 0.00281 | -0.0662 |
| 11 | *OPERCF* | 0.0773\* | 0.0943\*\* | -0.0185 | 0.0757\* | 0.0101 | 0.108\*\* | -0.0283 |
| 12 | *LEVERAGE* | 0.0316 | -0.0433 | 0.0295 | 0.0507 | 0.0619 | -0.0246 | 0.125\*\*\* |
| 13 | *SALEGR* | -0.0724\* | 0.128\*\*\* | 0.0522 | -0.0793\* | -0.0157 | -0.037 | -0.0955\*\* |
| 14 | *SERVICE* | 0.133\*\*\* | 0.0947\*\* | -0.0128 | -0.0184 | 0.0092 | 0.0656 | 0.0472 |
| 15 | *COMPETITION* | 0.205\*\*\* | 0.0157 | -0.00773 | 0.302\*\*\* | -0.0445 | 0.155\*\*\* | 0.0893\* |
|  |  | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 8 | *SIZE* | 1 |  |  |  |  |  |  |
| 9 | *XAD* | -0.326\*\*\* | 1 |  |  |  |  |  |
| 10 | *XRD* | 0.119\*\*\* | 0.0733\* | 1 |  |  |  |  |
| 11 | *OPERCF* | -0.216\*\*\* | 0.233\*\*\* | -0.0458 | 1 |  |  |  |
| 12 | *LEVERAGE* | -0.0338 | 0.0444 | -0.0261 | 0.00385 | 1 |  |  |
| 13 | *SALEGR* | 0.0151 | -0.055 | 0.128\*\*\* | -0.00106 | -0.175\*\*\* | 1 |  |
| 14 | *SERVICE* | 0.156\*\*\* | 0.0252 | 0.408\*\*\* | -0.103\*\* | -0.00453 | 0.00166 | 1 |
| 15 | *COMPETITION* | -0.0222 | 0.155\*\*\* | -0.0708\* | -0.0536 | -0.139\*\*\* | -0.0213 | 0.196\*\*\* |

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| **Table 3. The impact of managerial ability on customer satisfaction** | | | | | |
| **Variables** | **Model 1:**  **Baseline Regression** | **Model 2A:**  **Baseline+**  **CEO** | **Model 2B:**  **Baseline+**  **CEO** | **Model 3A:**  **Baseline+**  **CorpGov** | **Model 3B:**  **Baseline+**  **CorpGov** |
| *ABILITY* | 0.065 | 0.126 | 0.145 | 0.116 | 0.101 |
|  | (2.526\*\*) | (2.757\*\*) | (1.807\*) | (1.805\*) | (3.247\*\*\*) |
| *TENURE* |  | 0.017 |  |  |  |
|  |  | (0.910) |  |  |  |
| *ABILITY × TENURE* |  | -0.026 |  |  |  |
|  |  | (-0.639) |  |  |  |
| *OVERCONFIDENT* |  |  | 0.123 |  |  |
|  |  |  | (3.511\*\*\*) |  |  |
| *ABILITY × OVERCONFIDENT* |  |  | -0.034 |  |  |
|  |  | (-0.508) |  |  |
| *DUALITY* |  |  |  | -0.023 |  |
|  |  |  |  | (-1.183) |  |
| *ABILITY × DUALITY* |  |  |  | -0.059 |  |
|  |  |  |  | (-0.769) |  |
| *INSTBLOCK* |  |  |  |  | 0.069 |
|  |  |  |  |  | (3.262\*\*\*) |
| *ABILITY × INSTBLOCK* |  |  |  |  | -0.055 |
|  |  |  |  |  | (-2.576\*\*) |
| *SIZE* | -0.159 | -0.245 | -0.242 | -0.113 | -0.143 |
|  | (-4.223\*\*\*) | (-5.169\*\*\*) | (-4.648\*\*\*) | (-3.153\*\*\*) | (-3.798\*\*\*) |
| *XAD* | -0.010 | 0.025 | -0.058 | 0.047 | -0.008 |
|  | (-0.295) | (0.734) | (-1.467) | (1.443) | (-0.242) |
| *XRD* | -0.100 | -0.176 | -0.095 | -0.077 | -0.094 |
|  | (-3.644\*\*\*) | (-4.873\*\*\*) | (-2.379\*\*) | (-2.222\*\*) | (-3.542\*\*\*) |
| *OPERCF* | 0.059 | 0.048 | 0.027 | 0.043 | 0.064 |
|  | (2.479\*\*) | (2.159\*\*) | (0.724) | (2.092\*\*) | (2.672\*\*) |
| *LEVERAGE* | -0.023 | -0.010 | 0.008 | 0.011 | -0.026 |
|  | (-1.314) | (-0.487) | (0.400) | (0.375) | (-1.639) |
| *SALEGR* | 0.060 | 0.046 | 0.013 | 0.038 | 0.061 |
|  | (2.590\*\*) | (1.805\*) | (0.495) | (1.827\*) | (2.678\*\*) |
| *COMPETITION* | 0.032 | 0.035 | 0.027 | 0.026 | 0.022 |
|  | (0.980) | (1.351) | (0.356) | (0.546) | (0.655) |
| *INSTOWN* | 0.006 | -0.033 | 0.047 | -0.005 |  |
|  | (0.227) | (-1.060) | (1.762\*) | (-0.239) |  |
| *LOG(FIRM AGE)* | 0.092 | 0.067 | 0.061 | 0.075 | 0.102 |
|  | (3.047\*\*\*) | (2.144\*\*) | (2.196\*\*) | (1.547) | (3.314\*\*\*) |
| Constant | 4.407 | 4.461 | 4.454 | 4.395 | 4.396 |
|  | (238.44\*\*\*) | (168.48\*\*\*) | (153.91\*\*\*) | (201.28\*\*\*) | (239.94\*\*\*) |
|  |  |  |  |  |  |
| Adj. R-squared | 0.673 | 0.689 | 0.672 | 0.681 | 0.676 |
| Year fixed effect | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes |
| Clustered std err | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,320 | 1,105 | 891 | 1,320 | 1,320 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 4. Addressing Endogeneity - Heckman Two-Stage Regressions and 2 Stage-Least-Squared Instrument Variable Regressions** | | | | | | | |
| **Panel A – Stage 1** | |  | **Panel B – Stage 2 - Heckman** | | |  | **Panel C – Stage 2 - 2SLS** |
| **Variables** | **Coefficients** |  | **Variables** | **Coefficients** | **VIF** |  | **Coefficients** |
| *COLLEGE EDUC.* | 0.548 |  | *ABILITY* | 0.074 | 1.68 |  | 1.796 |
|  | (3.145\*\*\*) |  |  | (2.498\*\*) |  |  | (4.13\*\*\*) |
| *L.ASCI* | 0.189 |  | *SIZE* | -0.213 | 1.54 |  | -0.559 |
|  | -1.29 |  |  | (-3.671\*\*\*) |  |  | (-3.88\*\*\*) |
| *L.SIZE* | 0.881 |  | *XAD* | -0.017 | 1.18 |  | -0.269 |
|  | (5.667\*\*\*) |  |  | (-0.579) |  |  | (-2.67\*\*\*) |
| *L.CASH* | 0.672 |  | *XRD* | -0.087 | 1.35 |  | -0.27 |
|  | (3.519\*\*\*) |  |  | (-1.814\*) |  |  | (-3.25\*\*\*) |
| *L.ROA* | 0.219 |  | *OPERCF* | 0.036 | 1.14 |  | -0.234 |
|  | (2.871\*\*\*) |  |  | -1.248 |  |  | (-2.30\*\*) |
| *L.LEVERAGE* | 0.42 |  | *LEVERAGE* | -0.06 | 1.18 |  | -0.217 |
|  | (4.174\*\*\*) |  |  | (-2.509\*\*) |  |  | (-3.28\*\*\*) |
| *L.INSTOWN* | 0.524 |  | *SALEGR* | 0.05 | 1.23 |  | -0.093 |
|  | (4.482\*\*\*) |  |  | (2.337\*\*) |  |  | (-1.50) |
| Constant | -7.225 |  | *COMPETITION* | 0.023 | 1.13 |  | 0.025 |
|  | (-1.772\*) |  |  | -0.536 |  |  | -0.15 |
|  |  |  | *INSTOWN* | -0.02 | 1.08 |  | -0.046 |
| Rho | -0.978 |  |  | (-0.550) |  |  | (-0.72) |
| Sigma | 0.058 |  | *LOG(FIRM AGE)* | 0.042 | 1.22 |  | -0.198 |
| Pseudo R-squared | 0.299 |  |  | -1.152 |  |  | (-2.49\*\*) |
| Year fixed effect | Yes |  | *INVERSE MILLS* | -0.17 | 1.59 |  | 5.0344 |
| Industry fixed effects | Yes |  |  | (-2.572\*\*) |  |  | (34.35\*\*\*) |
| Clustered std err | Yes |  | Constant | 4.465 |  |  |  |
| Observations | 1,031 |  |  | (121.831\*\*\*) |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | Adj. R-squared | 0.698 |  |  | N/A |
|  |  |  | Year fixed effect | Yes |  |  | Yes |
|  |  |  | Industry fixed effects | Yes |  |  | Yes |
|  |  |  | Clustered std err | Yes |  |  | Yes |
|  |  |  | Observations | 1,031 |  |  | 1,031 |

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| **Table 5. Two-Stages Least Squared Regressions of Firm Value with Moderating Effects** | | | | | | |
|  | **Panel A - Whole Sample** | | **Panel B - Service Firms** | | **Panel C - Non-Service Firms** | |
| Variables | Stage 1 – Customer Satisfaction Regression | Stage 2 – Firm Value Regression | Stage 1 – Customer Satisfaction Regression | Stage 2 – Firm Value Regression | Stage 1 – Customer Satisfaction Regression | Stage 2 – Firm Value Regression |
| *ACSI* |  | 1.397 |  | 0.693 |  | 1.348 |
|  |  | (11.98\*\*\*) |  | (4.247\*\*\*) |  | (11.75\*\*\*) |
| *LNMKCAP* | 0.666 | 0.232 | 0.213 | 0.816 | 0.703 | 0.209 |
|  | (10.07\*\*\*) | (5.180\*\*\*) | (0.624) | (6.941\*\*\*) | (10.11\*\*\*) | (4.625\*\*\*) |
| *CASH RATIO* | -0.141 | 0.517 | 0.207 | -0.0855 | -0.154 | 0.537 |
|  | (-4.097\*\*\*) | (9.856\*\*\*) | (1.337) | (-0.914) | (-4.228\*\*\*) | (10.02\*\*\*) |
| *LEVERAGE* | -0.0182 | 0.308 | -0.114 | 0.289 | -0.0146 | 0.308 |
|  | (-0.708) | (7.725\*\*\*) | (-0.603) | (2.286\*\*) | (-0.554) | (7.712\*\*\*) |
| *PROFIT MARGIN* | -0.0442 | 0.0191 | -0.0963 | 0.199 | -0.0487 | 0.0244 |
|  | (-1.617) | (0.475) | (-1.054) | (2.946\*\*\*) | (-1.698\*) | (0.597) |
| *IND.ACSI.EXCL* | -0.201 |  | -0.350 |  | -0.205 |  |
|  | (-5.275\*\*\*) |  | (-2.105\*\*) |  | (-5.253\*\*\*) |  |
| *ABILITY* | 0.0201 |  | 0.264 |  | 0.0236 |  |
|  | (0.471) |  | (1.560) |  | (0.520) |  |
| *SIZE* | -0.727 |  | -0.467 |  | -0.737 |  |
|  | (-10.95\*\*\*) |  | (-1.207) |  | (-10.89\*\*\*) |  |
| *XAD* | -0.0290 |  | -0.0426 |  | -0.0131 |  |
|  | (-0.744) |  | (-0.193) |  | (-0.320) |  |
| *XRD* | -0.107 |  | -0.00294 |  | -0.112 |  |
|  | (-3.652\*\*\*) |  | (-0.0140) |  | (-3.643\*\*\*) |  |
| *OPERCF* | -0.0547 |  | 0.202 |  | -0.0632 |  |
|  | (-1.866\*) |  | (1.897\*) |  | (-2.060\*\*) |  |
| *SALEGR* | -0.0201 |  | 0.136 |  | -0.0193 |  |
|  | (-0.867) |  | (1.793\*) |  | (-0.793) |  |
| *COMPETITION* | -0.0230 |  | -0.551 |  | -0.00777 |  |
|  | (-0.312) |  | (-1.633) |  | (-0.0941) |  |
| *INSTOWN* | 0.0124 |  | -0.142 |  | 0.0122 |  |
|  | (0.463) |  | (-1.090) |  | (0.441) |  |
| *LOG(FIRM AGE)* | 0.0756 |  | 0.0391 |  | 0.0778 |  |
|  | (2.671\*\*\*) |  | (0.525) |  | (2.567\*\*) |  |
| *ABILITY × XAD* | 0.0232 |  | -0.0903 |  | 0.0141 |  |
|  | (0.716) |  | (-0.443) |  | (0.413) |  |
| *ABILITY × COMPETITION* | 0.00701 |  | 0.173 |  | -0.00399 |  |
|  | (0.170) |  | (0.889) |  | (-0.0885) |  |
| Constant | 5.422 | -95.79 | 6.235 | -55.91 | 5.463 | -92.40 |
|  | (24.97\*\*\*) | (-12.00\*\*\*) | (7.413\*\*\*) | (-4.816\*\*\*) | (24.12\*\*\*) | (-11.75\*\*\*) |
|  |  |  |  |  |  |  |
| Observations | 1,176 | 1,176 | 81 | 81 | 1,095 | 1,095 |
| Hansen J statistics | 3.02 |  | 2.06 |  |  | 3.04 |
| Kleibergen-Paap rk F statistics | 174.8\*\*\* |  | 36.07\*\*\* |  |  | 169.7\*\*\* |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Clustered std err | Yes | Yes | Yes | Yes | Yes | Yes |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 6. Two-stages least squared regressions of firm value without Moderating Effects** | | | | | | |
|  | **Panel A - Whole Sample** | | **Panel B - Service Firms** | | **Panel C - Non-Service Firms** | |
| Variables | Stage 1 – Customer Satisfaction Regression | Stage 2 – Firm Value Regression | Stage 1 – Customer Satisfaction Regression | Stage 2 – Firm Value Regression | Stage 1 – Customer Satisfaction Regression | Stage 2 – Firm Value Regression |
| *ACSI* |  | 1.391 |  | 0.666 |  | 1.342 |
|  |  | (11.95\*\*\*) |  | (4.070\*\*\*) |  | (11.73\*\*\*) |
| *LNMKCAP* |  | 0.233 |  | 0.823 |  | 0.209 |
|  |  | (5.201\*\*\*) |  | (7.076\*\*\*) |  | (4.643\*\*\*) |
| *CASH RATIO* |  | 0.516 |  | -0.0798 |  | 0.537 |
|  |  | (9.877\*\*\*) |  | (-0.861) |  | (10.04\*\*\*) |
| *LEVERAGE* |  | 0.308 |  | 0.288 |  | 0.307 |
|  |  | (7.745\*\*\*) |  | (2.309\*\*) |  | (7.730\*\*\*) |
| *PROFIT MARGIN* |  | 0.0194 |  | 0.196 |  | 0.0247 |
|  |  | (0.483) |  | (2.942\*\*\*) |  | (0.605) |
| *IND.ACSI.EXCL* | -0.203 |  | -0.326 |  | -0.205 |  |
|  | (-5.346\*\*\*) |  | (-2.013\*) |  | (-5.295\*\*\*) |  |
| *ABILITY* | 0.0360 |  | 0.340 |  | 0.0278 |  |
|  | (2.384\*\*) |  | (2.998\*\*\*) |  | (1.001) |  |
| *SIZE* | -0.728 |  | -0.403 |  | -0.739 |  |
|  | (-11.00\*\*\*) |  | (-1.073) |  | (-10.97\*\*\*) |  |
| *XAD* | -0.0137 |  | -0.0923 |  | -0.00300 |  |
|  | (-0.423) |  | (-0.456) |  | (-0.0889) |  |
| *XRD* | -0.111 |  | -0.0215 |  | -0.114 |  |
|  | (-3.872\*\*\*) |  | (-0.105) |  | (-3.786\*\*\*) |  |
| *OPERCF* | -0.0543 |  | 0.228 |  | -0.0631 |  |
|  | (-1.854\*) |  | (2.254\*\*) |  | (-2.059\*\*) |  |
| *SALEGR* | -0.0204 |  | 0.136 |  | -0.0193 |  |
|  | (-0.882) |  | (1.825\*) |  | (-0.797) |  |
| *COMPETITION* | -0.0205 |  | -0.530 |  | -0.00887 |  |
|  | (-0.284) |  | (-1.607) |  | (-0.108) |  |
| *INSTOWN* | 0.0115 |  | -0.160 |  | 0.0124 |  |
|  | (0.435) |  | (-1.257) |  | (0.449) |  |
| *LOG(FIRM AGE)* | 0.0750 |  | 0.0214 |  | 0.0770 |  |
|  | (2.653\*\*\*) |  | (0.301) |  | (2.550\*\*) |  |
| Constant | 5.432 | -95.40 | 6.052 | -53.96 | 5.468 | -92.04 |
|  | (25.08\*\*\*) | (-11.97\*\*\*) | (7.504\*\*\*) | (-4.640\*\*\*) | (24.21\*\*\*) | (-11.73\*\*\*) |
|  |  |  |  |  |  |  |
| Observations | 1,176 | 1,176 | 81 | 81 | 1,095 | 1,095 |
| Hansen J statistics | 3.36 |  | 2.73 |  | 2.02 |  |
| Kleibergen-Paap rk F statistics | 174.3\*\*\* |  | 35.04\*\*\* |  | 169.5\*\*\* |  |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Clustered std err | Yes | Yes | Yes | Yes | Yes | Yes |

1. The link for the Managerial Ability measure is https://peterdemerjian.weebly.com/managerialability.html. [↑](#footnote-ref-1)
2. Source: https://www.theacsi.org/about-acsi/the-science-of-customer-satisfaction [↑](#footnote-ref-2)