

Print ISSN: 1738-3110 / Online ISSN 2093-7717
<http://dx.doi.org/10.15722/jds.16.9.201809.53>

How Does the Time Variation of Customer Satisfaction Affect Korean Retail Firms' Performance?

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Received: June 04, 2018. Revised: August 08, 2018. September 15, 2018.

Abstract

Purpose - This study aims to examine how the time variations of customer satisfaction influence retail firms' performance.

Research design, data, and methodology - The study employs yearly time series customer satisfaction data of Korean retail secured from the National Customer Satisfaction Index(NCSI) for the 2011~2016 period. Our data includes a total of 90 observations of 15 retail firms in 5 different sector(department store, filling station, large discount store, open market, TV home shopping). We obtained the firm performance data from the KIS Value database. The variables for financial performance include sales and net profit.

Results - The results show that customer satisfaction has dynamic effects on retail firms' performance. More specifically, the time variation of customer satisfaction has the moderating effect on the linkage between customer satisfaction and financial performance as well as direct effects on the firms' financial performance.

Conclusions - Customer satisfaction has the current effect lasting over time on firm performance and changes of customer satisfaction in positive direction also impact on firm performance. Retail firms need to not only focus on improving customer satisfaction in the current term, but make efforts to continuously enhance customer satisfaction in the long term.

Keywords: Customer Satisfaction, Time Variation of Customer Satisfaction, Firm Performance, Retail Firm.

JEL Classifications: M31, L84.

1. Introduction

Retail firms recognize that customer satisfaction plays an important role to lead successful firm performance(Gomez, McLaughlin, & Wittink, 2004). According to the study of Szymanski and Henard(2001) that have synthesized and analyzed the empirical findings of customer satisfaction, a great deal of empirical studies in marketing literature show that customer satisfaction influences customer behaviors(e.g., repurchase and positive word-of-mouth). Some previous studies(e.g., Anderson, Fornell, Lehmann, & Rust, 1997; Anderson & Mittal, 2000; Banker, Potter, & Srinivasan, 2000; Iltner & Larcker, 1998; Jeon & Kim, 2005; E. Lee, Yoo, & D. Lee, 2017; Rego, Morgan, & Fornell, 2013; Yi, Cha, & C. Lee, 2008; Yi & C. Lee, 2010) note that customer satisfaction has a significant relationship with financial performance. For

example, Anderson and Mittal(2000) show that customer satisfaction positively influences return on investment(ROI). Rego et al.(2013) provide empirical evidence for a positive impact of customer satisfaction on market share. However, some studies showed a negative relationship between customer satisfaction and financial performance(Fornell, 1992; Griffin & Hauser, 1993) and some other studies even provided insignificant relationship between customer satisfaction and firm performance(Jacobson & Mizik, 2009; Iltner, Larcker, & Taylor, 2009; Park & Kim, 2003). There are several causes of these conflicting findings such as different samples and study periods employed in the studies. Specially, we contend that one needs to examine time series variation of customer satisfaction to fully understand the relationship between customer satisfaction and various performance metrics.

As do many marketing activities, and so customer satisfaction may have dynamic effects on firm's performance over time. However, most previous studies tested mainly the current effect of customer satisfaction on firm's performance (Yi et al., 2008). Only a few studies(e.g., Bernhardt, Donthu, & Kennett, 2000; Jeon & Kim, 2005; Yi et al., 2008; Yi &

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Lee, 2010; Lee et al., 2017) have examined long-term effects of customer satisfaction on firm performance. Is sustained investment on customer satisfaction of Korean retail firms financially accountable? If retail firms' maintenance and management of customer satisfaction has long-lasting carry-over effects on firm performance, their investments on customer satisfaction become more efficient and effective. However, the almost all studies on carry-over effects of customer satisfaction(except Bernhardt et al., 2000) consider study contexts cover both manufacturing and service including some retail firms such as department stores and gas stations rather than a specific industry. There are far too few answers on the more obvious carry-over effect of customer satisfaction with a focus on the retail industries in Korea.

The present study aims to examine how the time variations of customer satisfaction influence retail firms' performance. That is, this study investigates the carry-over effects of customer satisfaction on firm performance. Specially, this study considers whether the time variation of customer satisfaction(the rate of change at a t period from previous three time period) influences time t 's firm performance over. Examining the time variation of customer satisfaction will provide researchers and managers with additional insights about the role of customer satisfaction on creating firm performance.

2. Literature Review

2.1. Customer Satisfaction and Firm Performance

Customer satisfaction is defined in terms of either a particular customer's evaluation of specific transaction or an overall performance of a firm's products(Anderson et al. 1997). As this study focuses on overall performance of the retail firm, the definition of customer satisfaction in the present study is the latter aspect. Many previous studies in the marketing literature note that customer satisfaction have considerable influences on firm performance and value, so then it is able to lead to a firm's success in the market(see <Table 1>).

According to Anderson and Mittal(2000), customer satisfaction enhances customer retention and thus facilitates increased profits. That is, satisfied customers should become loyal customers and attract other potential loyal customers, and this loyalty should be reflected in the financial performance of the firm(Berd, 2010). Although many studies (e.g., Anderson et al., 1997; Anderson & Mittal, 2000; Banker et al., 2000; Ittner & Larcker, 1998; Jeon & Kim, 2005; Lee et al., 2017; Rego et al., 2013; Yi et al., 2008; Yi & Lee, 2010) have showed that customer satisfaction significantly influences firm performance, some studies(e.g., Fornell, 1992; Griffin & Hauser 1993; Jacobson & Mizik 2009; Ittner et al. 2009; Park & Kim, 2003) have provided

insignificant and negative effects of customer satisfaction on firm performance. These conflicting findings about the relationship between customer satisfaction and firm performance may be attributable to the fact that in all these studies cross-firm data collected at one point in time(Bernhardt et al., 2000).

Most of the studies, except for some studies(e.g., Bernhardt et al., 2000; Jeon & Kim, 2005; Yi et al., 2008; Yi & Lee, 2010; Lee et al., 2017), ignored the dynamic effects over time of customer satisfaction on firm's performance due to using cross-sectional data. Failure to examine the dynamic effects might drive to incorrect estimation of the impact of customer satisfaction(Yi et al., 2008). For examples, Bernhardt et al.(2000) showed that there is no significant linkage among customer satisfaction and profits/sales in any given time period, but the true relationship between customer satisfaction and profits/sales emerges when changes in customer satisfaction and profits/sales are examined over a period of time 12 months. It notes that a positive linkage among changes in customer satisfaction and the financial performance of the firm emerge. Also, previous studies(e.g., Bernhardt et al., 2000; Jeon & Kim, 2005; Yi et al., 2008; Yi & Lee, 2010; Lee et al., 2017) about the dynamic effect of customer satisfaction on firm performance has some limitations. The regression models in their studies might be not enough to fully reflect the carry-over effect of customer satisfaction, because the current and lagged terms of customer satisfaction in their models has been added only as independent variables. The dynamic model of customer satisfaction is difficult to estimate for the following reasons. Researchers should determine how many of the past terms of customer satisfaction will be included in the model and minimize the potential issues of the multi-collinearity among the current and past terms of customer satisfaction.

To address these gaps in literature, this study focused on the carry-over effects of customer satisfaction on retail firms' performance during three-year period. Specially, this study sheds some lights on the role of the time variation of customer satisfaction(the rate of change at a given time t from time $t-1$, $t-2$, $t-3$) in explaining the relationship between customer satisfaction and firm performance.

2.2. Research Model

We were able to obtain both the level and the time variations of customer satisfaction from National Customer Satisfaction Index(NCSI) data compiled by the Korea Productivity Center(KPC). The values of time variations of customer satisfaction were obtained by calculating the rate of change at time t from the each three base period($t-1$, $t-2$, $t-3$). Using this dataset, this study empirically investigates whether the time variations of customer satisfaction influences firm performance. Specifically, we measure a firm's performance by its sales and net profit. The present

study included firm age, the number of employees, and firm performance at the t-1 period as control variables. This study proposes four models to examine the main effect of time variations of customer satisfaction(ΔCS_{t-1} , $i=1, 2, 3$) on firm's performance as equation 1 and 2.

$$(Eq. 1) S_t = \beta_0 + \beta_1 CS_t + \beta_2 \Delta CS_{t-1} + \beta_3 \Delta CS_{t-2} + \beta_4 \Delta CS_{t-3} + \beta_5 FA_t + \beta_6 FS_t + \beta_7 S_{t-1} + \epsilon_t$$

$$(Eq. 2) NP_t = \beta_0 + \beta_1 CS_t + \beta_2 \Delta CS_{t-1} + \beta_3 \Delta CS_{t-2} + \beta_4 \Delta CS_{t-3} + \beta_5 FA_t + \beta_6 FS_t + \beta_7 S_{t-1} + \epsilon_t$$

Where,

S_t : a retail firm's sales at the given time period

NP_t : a retail firm's net profit at the given time period

CS_t : a retail firm's customer satisfaction at the given time period

ΔCS_{t-1} : a retail firm's rate of changes of customer satisfaction at period from t-1($i=1, 2, 3$)

FA_t : a retail firm's age at the given time period

FS_t : a retail firm's number of employees at the given time period

<Table 1> Previous Studies on CS and Firm Performance

Study	Measure of CS	Variables of Performance	Study Contexts
Anderson et al.(1994)	SCSB	ROI, Market share	Airlines, automobiles, banking, charter travel, clothing retail, department stores, furniture stores, gas stations, insurance, Mainframe computers, PCs, supermarkets
Anderson et al.(1997)	SCSB	Productivity, ROI	Airlines, automobiles, banking, basic foods, charter travel, clothing retail, department stores, furniture stores, gas stations, insurance, mainframe computers, PCs, newspapers, shipping, supermarkets
Ittner & Larcker(1998)	ACSI	MVE, CAR	Telecommunications firms
Bernhardt et al.(2000)	Survey	Monthly profit	Fast-food restaurant
Yeung et al.(2002)	ACSI	Operating profit, Net profit	(not mentioned)
Park & Kim(2003)	ACSI	Market share	Personal computer, automobiles, mobile telephone services, life insurance, securities, credit card, milk and dairy products, banks, gas station
Jeon & Kim(2005)	KCSI	SGR, ROS, ROA	Durable goods, consumer goods, services (not specifically mentioned)
Yi & Lee(2006)	KCSI	ROA, EVA	Durable goods, consumer goods, services, total 28 sectors (not specifically mentioned)

Study	Measure of CS	Variables of Performance	Study Contexts
Yi et al.(2008)	KCSI	ROA, EVA	Durable goods, consumer goods, services, total 28 sectors (not specifically mentioned)
Yi & Lee(2010)	KCSI	ROA	Durable goods, consumer goods, services, total 53 sectors (not specifically mentioned)
Rego et al.(2013)	ACSI	Market share	Products and services (not specifically mentioned)
Lee et al.(2017)	NCSI	Revenue, Net income, Tobin's q, Stock Returns	Airlines, international telephone services, mobile telephone services, broadband Internet service, personal computers, mobile phones, televisions, automobiles, apartment construction, milk and dairy products, soju(Korean wine), beer, beverages, tobacco, men's suits, women's fragrance and beauty products, gas station, department stores, discount stores, hotels, banks, credit card, property insurance, securities

Note 1) This summary is based on Yi et al.(2010) and Lee et al.(2017).

Note 2) SCSB=Swedish Customer Satisfaction Barometer, ACSI=American Customer Satisfaction Index, SCSI=Swedish Customer Satisfaction Index, KCSI=Korean Customer Satisfaction Index, NCSI=National Customer Satisfaction Index, CAR=Cumulative Abnormal Returns, MVE=Market Value of Equity, SGR= Sales growth rate, ROS=Return on sales, ROA=Return on Assets

3. Methodology

3.1. Data

The study employs yearly time series CS data of Korean retail firms secured from the National Customer Satisfaction Index(NCSI), which provides 5 years of time series data for the 2012~2016 period. NCSI is evaluated by the customers who have experienced using applicable products and services that are produced and sold to the end users in Korea. Also, NCSI research applies the same measurement methodology and is conducted at the each company's product or service line level. Results of the measurement are published at the company, industry, economic sector and nation level(<http://www.ncsi.or.kr>). We obtained the firm performance and firm size data from the KIS Value database. The variables for financial performance include sales and net profit. This study considers three control variables such as financial performance at t-1 period, Firm age and size. Firm age and size are commonly recognized in literature(Yi & Lee, 2010) as influencing firm performance.

In this study, firm age was calculated as subtracting the establishment year of the specific firm from the NCSI survey year. Firm size was measured by the number of employees.

Since the models of this study contain the lagged terms of customer satisfaction and its rate of change, it is likely that there will be multi-collinearity between independent variables. In order to mitigate the potential for multi-collinearity, this study mean-centered for all independent variables (Rokkan, 2003).

3.2. Analysis Unit

For consistency of firm-level data, a two-step procedure was used to match data from the NCSI with data from KIS Value database. The identities of Korean retail firms participating in the NCSI were matched with the identities of companies in the KIS Value database for the analysis period from 2011 to 2016. The two data sets were then merged using the financial data for the year end subsequent to the NCSI filing date. Our final data includes a total of 90 firm-year observations of 15 retail firms in 5 different sector (large discount store, department store, open market, gas station, TV home shopping).

4. Results

4.1. Descriptive Statistics

The descriptive statistics among variables are summarized in <Table 2>. The levels of customer satisfaction of 15 retail firms from 2011 to 2016 show an upward trend. It is seen as the results of the continuous investment of those retail companies for improving customer satisfaction.

<Table 2> Descriptive Statistics

	n	Mean	Standard deviation
CS ₂₀₁₁	15	71.385	2.063
CS ₂₀₁₂	15	72.857	1.610
CS ₂₀₁₃	15	73.600	1.183
CS ₂₀₁₄	15	73.133	.915
CS ₂₀₁₅	15	74.800	1.082
CS ₂₀₁₆	15	75.400	.828
ΔCS_{t-1}	45	0.028	.024
ΔCS_{t-2}	45	0.020	.017
ΔCS_{t-3}	45	0.011	.018
S _t	45	4,467,625,131.643	6,523,544,133.819
NP _t	45	985,517,175.595	921,685,194.068
FA _t	45	22.210	5.811
FS _t	45	1082.063	256.745

Note) CS_t = a retail firm's customer satisfaction at the given time period t, ΔCS_{t-i} = a retail firm's rate of changes of customer satisfaction at period from t-i (i=1, 2, 3), S_t = a retail firm's sales at the given time period t, NP_t = a retail firm's net profit at the given time period t, FA_t = a retail firm's age at the given time period t, FS_t = a retail firm's number of employees at the given time period t.

4.2. Test of Models

The present study used standard hierarchical regression analysis to assess the effect of the time variations of customer satisfaction on retail firm's financial performance. To analyze hierarchical regression for sales and net profit at the given time, S_{t-1} were entered in the first step as control variables, the rate of change of customer satisfaction for three time period (ΔCS_{t-i}) were added in the second step.

As shown in <Table 3>, in Model 2 for sales, CS_t (β_{CS_t} = .409, p < .001) not only has a positive impact on sales at the given period t, but ΔCS_{t-1} ($\beta_{\Delta CS_{t-1}}$ = .272, p < .05) and ΔCS_{t-2} ($\beta_{\Delta CS_{t-2}}$ = .259, p < .05) have direct and positive effects on sales at the time t. Furthermore, in Model 2 for net profit, CS_t ($\beta_{\Delta CS_t}$ = .151, p < .01) not only has a positive impact on net profit at the given period t, ΔCS_{t-1} ($\beta_{\Delta CS_{t-1}}$ = .142, p < .05) and ΔCS_{t-2} ($\beta_{\Delta CS_{t-2}}$ = .103, p < .05) have positive effects on net profit at the time t. Collectively, these findings suggest that there are the positive carry-over effects over two years of customer satisfaction on retail firms' sales and net profit.

5. Conclusion

5.1. Summary and Implications

Is sustained investment on customer satisfaction of Korean retail firms financially accountable? To answer the question, this study examined whether the time variation of customer satisfaction influences time t's firm performance over. The results show that the positive relationships between time variations, operationalized as a rate of changes of customer satisfaction, and performance measures (both sales and net profit) are examined over two period of time, in this case, two years. The present findings provide a greater understanding of the impact of customer satisfaction on retail firm's performance, including evidence concerning the causal direction of time variations of customer satisfaction.

The empirical evidences imply that the investments to improve customers' perceptions of customer satisfaction can lead a good return. Managers of retail companies should make efforts for continuous improvement of customer satisfaction. More importantly, retail firms need to be patient in evaluating the effect of customer satisfaction programs rather than get a quick return on investment from such programs. Such programs have real effects over time. Examining results at any given point in time can cause a manager to draw incorrect conclusions. Customer satisfaction has the current effect lasting over time on firm performance and changes of customer satisfaction in positive direction also impact on firm performance. Thus, retail firms need to not only focus on improving customer satisfaction in the current term, but make efforts to continuously enhance customer satisfaction based on the long term view.

<Table 3> Hierarchical Regression Analysis

	Sales						Net profit					
	Model1			Model2(Equation 1)			Model1			Model2(Equation 2)		
	B	t-value	VIF	B	t-value	VIF	B	t-value	VIF	B	t-value	VIF
CS _t	.509	4.106***	1.221	.409	3.355***	1.413	.153	3.321**	1.234	.151	2.784**	1.400
ΔCS _{t-1}				.272	2.118*	1.843				.142	2.106*	1.876
ΔCS _{t-2}				.259	2.101*	1.681				.103	1.997*	1.677
ΔCS _{t-3}				.004	.032	1.459				.035	.340	1.485
S _{t-1}	.300	2.842**	1.064	.214	2.140*	1.142						
NP _{t-1}							.253	3.699**	1.031	.242	3.652**	1.090
FA _t	.227	2.106*	1.371	.222	2.236*	1.384	0.132	2.838**	1.340	.127	2.717**	1.359
FS _t	.022	.792	1.961	.010	.358	2.219	0.337	5.484***	1.965	.335	4.980***	2.202
R ²	0.576			0.624			0.241			0.351		
F-value	18.678***			25.845***			24.217***			40.150***		
ΔR ²				0.048**						.110***		

Note 1) CS_t = a retail firm's customer satisfaction at the given time period t, ΔCS_{t-i} = a retail firm's rate of changes of customer satisfaction at period from t-i(i=1, 2, 3), S_t = a retail firm's sales at the given time period t, NP_t = a retail firm's net profit at the given time period t, FA_t = a retail firm's age at the given time period t, FS_t = a retail firm's number of employees at the given time period t.
 2) Unstandardized regression coefficient of constant for sales: Model1=1.419, Model2=0.923, unstandardized regression coefficient of constant for net profit: Model1 = 4.819, Model2 = 6.490, * p < .05, ** p < .01, *** p < .001

5.2. Limitations and Future Research

Some limitations of the present study suggest implications for future research. First, the present study used NCSI data compiled by the Korea Productivity Center. There are other indexes such as KCSI(Korean Customer Satisfaction Index) developed and announced by Korea Management Association Consulting. Each institution has a different method of measuring the customer satisfaction index. To lead more general conclusions, it is needed to re-test the effects of the time variations of customer satisfaction on retail firms' performance using the customer satisfaction index of other organizations. Second, this study employed 5 years of time series data for the 2012~2016 period to calculate the rate of change at time t from the each three base period(t-1, t-2, t-3). Future research needs to examine the carry-on effects of customer satisfaction over longer periods of time to uncover the time lag among changes in customer satisfaction and firm performance(sales and profits). Third, Future research should consider broader measures of performance such as market share and ROA(return on assets) beyond the financial measures of sales and profits. Finally, this study assumed a linear relationship between customer satisfaction and firm performance as with many previous studies. Future research needs to investigate the nonlinear relationship between customer satisfaction and financial performance(Schneider & Bowen, 1999).

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