New insights in the moderating effect of switching costs on the satisfaction–repurchase behavior link

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Introduction

Todays' retailers direct substantial marketing resources toward improving customer satisfaction (e.g., Gómez, McLaughlin, and Wittink 2004). However, the financial outcomes of these investments are lower than is often assumed, because positive attitudes do not necessarily translate into behavioral aspects of loyalty (for a review, see Kumar, Pozza, and Ganesh 2013). As research on explaining customer repurchase behavior has broadened (e.g., Evanschitzky et al., 2012, Mittal and Kamakura, 2001, Reinartz and Kumar, 2000, Reinartz and Kumar, 2003, Seiders et al., 2005 and Voss et al., 2010), empirical evidence questioning the impact of satisfaction-related constructs on customer behavior and financial outcomes has increased as well. Most notably, an increasing number of studies investigate the role of switching costs (SC) as a complementary explanation for observed behavior (Kumar, Pozza, and Ganesh 2013).

Research has recently clarified facets of the SC construct, including its dimensions and measurements (Burnham et al., 2003, Colgate et al., 2007, Jones et al., 2000, Jones et al., 2002, Jones et al., 2007, Lam et al., 2004 and Patterson and Smith, 2003). SC are often defined as the costs (time, money, and effort) involved in switching from one provider to another (Burnham et al., 2003 and Heide and Weiss, 1995). This widely accepted definition includes monetary as well as nonmonetary costs; for the purpose of this study, therefore, we define SC as monetary and nonmonetary costs a customer faces when switching to a new provider (Dick and Basu, 1994 and Pick and Eisend, 2013).

In addition to this definition, research has also classified SC into different types (e.g., Blut et al., 2014, Burnham et al., 2003, Jones et al., 2002 and Patterson and Smith, 2003). Some authors distinguish between psychological SC (e.g., interpersonal relationships) and economic SC (e.g., search costs) (Marshall et al., 2011 and Wathne et al., 2001). Others categorize SC into learning, transaction, and artificial costs (Klemperer, 1987 and Nilssen, 1992). Arguably, the most accepted categorization of SC is suggested by Burnham, Frels, and Mahajan (2003), who distinguish "relational," "financial," and "procedural" SC. Jones et al. (2007) argue that because relational and financial SC result from positive sources of constraints (e.g., loss of privileges, forgone loyalty card points, loss of special treatment), they are classified as "positive SC." In contrast, procedural SC are derived from negative sources of constraints (e.g., search time, travel costs), and represent negative SC (Jones et al. 2007). In other words, positive SC are foregone benefits from the current relationship when switching to a new provider, whereas negative SC represent actual losses associated with the switching process.

SC are understood to influence customer behavior directly as well as indirectly. A recent meta-analysis of Pick and Eisend (2013) has summarized their main antecedents as well as their direct effect on switching. Considering different industries, the authors have shown that SC reduce switching and play an important role when explaining customers' repurchase behaviors. Our study aims to extend these findings by considering not only the direct effect of SC on repurchase behavior but also their moderating effect. Notably, the moderating role of SC on the relationship between satisfaction and repurchase behavior has received considerable attention (e.g., Bell et al., 2005 and Jones et al., 2000). However, individual empirical findings are inconclusive and theoretical reasoning is somewhat thin. While some studies find positive moderating effects (e.g., Patterson, 2004 and Yang and Peterson, 2004), others reveal negative moderating effects (e.g., Anderson et al., 1994, Jones et al., 2000 and Patterson and Smith, 2003) or find no significant moderating effect (e.g., Burnham et al., 2003 and Lam et al., 2004) of SC on the satisfaction-repurchase behavior link. On that basis, our research intent is to shed light on the moderating effect of SC on the satisfaction–repurchase behavior link. In particular, we set out to make three contributions:

(1) We theoretically derive a nonlinear (inverted u-shaped) moderating effect of SC on the relationship between satisfaction and repurchase behavior by synthesizing two opposing effects: a negative moderating effect ("lock-in effect") and a positive moderating effect ("amplifying effect").
(2) We empirically test the nonlinear moderating effect of overall SC across different settings.
(3) We show that different types of SC (i.e., positive and negative) exert different moderating effects on the satisfaction–repurchase behavior link.

Beginning our article with a meta-analytical synthesis of empirical studies that investigate the moderating effect of SC, we find evidence for positive as well as negative effects. We then theoretically argue for an inverted u-shaped moderating effect of SC on the satisfaction–repurchase behavior link. In Study 1, we test the moderating effect of overall SC in a food retail setting (Study 1a) and further generalize findings with data from do-it-yourself (DIY) retailing (Study 1b), retail banking (Study 1c), and a business-to-business (B-to-B) setting (Study 1d). In Study 2, we take a more nuanced view, testing the moderating effects of different SC types in a retail banking setting (Study 2a) and replicating the effects in a B-to-B setting (Study 2b). The paper concludes by discussing explicit implications for theory and management practice.

The Moderating Role of Switching Costs: A Meta-Analytical Review

A large number of empirical studies have examined factors moderating the relationship between customer satisfaction and behavioral aspects of loyalty (for an overview, see Seiders et al. 2005). Among these, several empirical studies specifically investigate the moderating role of SC, making a meta-analytical synthesis of these findings viable.

To identify relevant studies, we employed an extensive literature search in scientific databases such as Ebsco, Proquest, ABI/Informs, and Elsevier Science Direct, searching for terms such as "switching cost(s)" and "switching barrier(s)." In total, we collected 240 studies conducted between 1989 and 2012.[1] From these, we identified 86 quantitative-empirical manuscripts, of which 32 directly assess interaction effects between customer satisfaction and SC on repurchase behavior. Some of the 32 studies test the moderating effect of SC in more than one sample, thereby providing a total of 47 individual samples for our first analysis.

Of the 47 samples, 21 find support for a negative interaction between satisfaction and SC on repurchase behavior, 10 find a positive interaction effect, and 16 find no evidence for a moderating effect (see Table 1). A chi-square test indicates that the effects across the three categories (negative, positive, and insignificant interaction effect) are equally distributed ($\chi^2(2) = 3.87$, p > .10). Hence, no conclusions can be drawn on whether SC exert a positive, a negative, or no moderating effect.

Table 1. - Literature overview: interaction effects between satisfaction and switching costs.

Author and year	Dependent variable	Negative interaction	Positive interaction	Insignificant interaction
Anderson, Fornell, and Lehmann 1994	Purchase intention	x		
Aydin, Oezer, and Arasil 2005	Customer loyalty	x		
Balabanis, N, and A, 2006	E-store loyalty	x	x	x
Burnham, Frels, and Mahajan 2003	Intention to stay			x
Chang and Chen 2009	Customer loyalty		x	
Chebat, M, and A, 2011	Exit/loyalty	x		x
Chen 2006	Financial performance	x		
de Matos et al. 2009	Attitudinal/behavioral loyalty	x		
Goode and Harris 2007	Behavioral intentions	x	x	x
Han 2007	Revisit intention	x		
Holloway 2003	Intention to remain	x		x

Author and year	Dependent variable	Negative interaction	Positive interaction	Insignificant interaction
Jones, Mothersbaugh, and Beatty 2000	Purchase intention	x		
Kaur, Sharma, and Mahajan 2012	Customer loyalty	x		
Kim, Park, and Jeong 2004	Customer loyalty		x	x
Kim, Shin, and Lee 2006	Intention to switch			x
Lam et al. 2004	Customer loyalty			x
Lee, Lee, and Feick 2001	Customer loyalty		x	
Lee and Neale 2012	Customer retention		x	
Lim 2005	Customer loyalty	x		x
Patterson 2004	Repeat purchase intention	x	x	
Patterson and Smith 2003	Propensity to remain	x		x
Qin, Chen, and Wan 2012	Customer loyalty			x
Ranaweera and Prabhu 2003	Customer retention	x		
Sharma 2003	Relationship commitment	x		
Sharma and Patterson 2000	Relationship commitment	x		
Tsai et al. 2010	Customer loyalty		x	x
Tong, Wong, and Lui 2012	Customer loyalty			x
Vasudevan, Gaur, and R, 2006	Commitment	x		
Wangenheim 2003	Active loyalty/passive loyalty	x		x
Woisetschläger, Lentz, and Evanschitzky 2009	Customer loyalty	x	x	x
Yang et al. 2009	Customer loyalty	x		
Yang and Peterson 2004	Customer loyalty		x	x
		21 studies	10 studies	16 studies
		$\chi^2 (2) = 3.872$: $p > .1$		

To gain a first impression about the shape of the interaction effect, we examined all 86 empirical studies, investigating the satisfaction–repurchase behavior link in more detail. For each study we coded effect size and level of SC. Among the 86 studies, 18 studies provide sufficient information to warrant including them in our meta-analytical assessment. These 18 studies provide information about 42 effects on the customer satisfaction–repurchase behavior link. Of these, 33 effects (79 percent) were based on the Pearson correlation coefficient, and 9 effects (21 percent) were correlations derived from the beta coefficient (Lipsey and Wilson 2001). As well, 38 effects (90 percent) examined "self-reported repurchase intentions" as the dependent variable, while 4 effects (10 percent) investigated "objective repurchase behavior."

We split the SC variable into three equal-sized groups (low, medium, and high levels of SC) to plot the mean correlations for each of these groups (see Fig. 1). First, we coded the mean levels of SC (based on correlations or regression results). Next, we coded the type of scale (5-, 6-, or 7-point Likert scale), the direction of anchors (highest scale value = strongly agree vs. lowest scale value = strongly agree), the type of SC (procedural, relational, or financial), and the type of the dependent variable (intention vs. behavior). We then converted the empirical means into a 7-point Likert scale (with 7 = strongly agree) to ensure the comparability of findings. Finally, we split the calculated variable into three groups (N_{lowSC} = 15 effects, $N_{mediumSC}$ = 13 effects and N_{highSC} = 14 effects) with an average level of SC per group of M_{lowSC} = 2.28, $M_{mediumSC}$ = 3.85, and M_{highSC} = 4.69.[2] Interestingly, the plotted curve suggests an inverted u-shaped interaction effect of SC on the link between satisfaction and repurchase behavior.

Fig. 1. - Mean correlations between satisfaction and repurchase behavior.
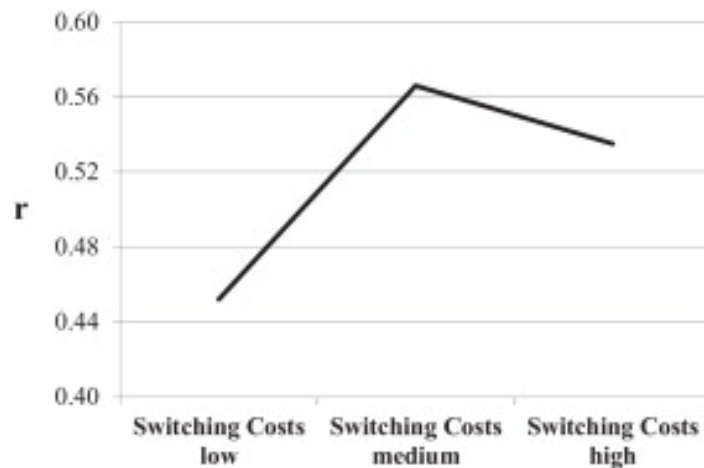
Theoretical Background

Following initial evidence from the meta-analysis about the existence of an inverted u-shaped moderating effect of SC, we theorize the nature of that moderation. In the following section, we explain and synthesize two opposing effects—a negative moderating effect we call "lock-in effect," and a positive moderating effect we refer to as "amplifying effect."

Lock-In Effect of Switching Costs

Previous research has argued for a "lock-in effect" of SC. Proponents of that effect assert that decreasing satisfaction levels will not automatically result in reduced purchases if SC are high, because customers would face additional costs if they changed their provider (e.g., Bell et al., 2005, Dick and Basu, 1994 and Harrison et al., 2012). Therefore, the benefits from switching to a potentially more satisfying alternative might be undermined by increasing SC. Thus, increasing SC are likely to weaken the link between satisfaction and repurchase behavior, as switching will be hindered regardless of satisfaction levels (Bansal and Taylor 2002).

Conversely, if SC are low, customers face few obstacles when changing their provider, and can therefore easily adapt their purchase behavior according to their satisfaction level (e.g., Jones, Mothersbaugh, and Beatty 2000). Consequently, a negative moderating effect of SC on the satisfaction–repurchase behavior link can be assumed.

Amplifying Effect of Switching Costs

In contrast to the lock-in effect, there is also empirical evidence that SC will moderate the link between satisfaction and repurchase behavior in a positive way. This "amplifying effect" suggests that increased SC strengthen the effect of satisfaction on repurchase behavior, meaning that satisfaction is more likely to translate into actual repurchase behavior as SC increase (e.g., Blut et al., 2007, Chang and Chen, 2009, Lee et al., 2001 and Yang and Peterson, 2004).

Research has shown that customers who stay with a provider from one period to the next not only face SC, but staying costs as well (Faison, 1977, Seetharaman and Che, 2009, Seetharaman and Chintagunta, 1998 and Zeithammer and Thomadsen, 2013). These staying costs (e.g., boredom, lack of variety, satiation, curiosity) could lead customers to make seemingly irrational purchasing decisions (e.g., Baucells and Sarin, 2007, Brickman and D'Amato, 1975, Patterson and Smith, 2003, Sajeesh and Raju, 2010, Sela et al., 2009, Steenkamp and Baumgartner, 1992 and Zuckerman, 1979). Normally, it would be expected that under low SC, customers are unrestricted—that is, free in their purchase decisions—and that repurchase behavior would, in the main, depend on satisfaction as a cumulative measure for past experiences. However, customers who face staying costs can be expected to occasionally switch to less-satisfaying providers, while their satisfaction with the focal providers remains unchanged. In the case of low SC, it is easy for customers to switch and, hence, to reduce their staying costs (Seetharaman and Che, 2009, Van Trijp et al., 1996 and Zeithammer and Thomadsen, 2013).

This behavior of occasionally switching to less satisfying alternatives can be explained through a cost-utility perspective. Assuming that an alternative provider is perceived to be less-satisfaying, switching might still be beneficial. The benefits stemming from reduced staying costs might compensate for the lower satisfaction level. If SC are low, therefore, "we can expect a weaker relationship due to the natural inclination of the customer to try different alternatives" (Kumar, Pozza, and Ganesh 2013, p. 5). When SC increase, customers will no longer switch to less-satisfying alternatives, as rising SC and lower satisfaction levels would at some point offset the benefits from reduced staying costs. Accordingly, the satisfaction–repurchase behavior link is expected to strengthen with increasing SC. In other words, the higher the SC, the less beneficial it is for customers to switch providers against their satisfaction.

In line with existing results, we assume a diminishing marginal sensitivity for the amplifying effect: The amplifying effect is expected to be more important if SC are low, whereas it decreases when SC increase (e.g., Sajeesh and Raju, 2010 and Van Trijp et al., 1996). As a consequence, the link between satisfaction and repurchase behavior strengthens with increasing SC, albeit at a decreasing rate (Fig. 2).

Fig. 2. - Inverted u-shaped moderating effect of switching costs.
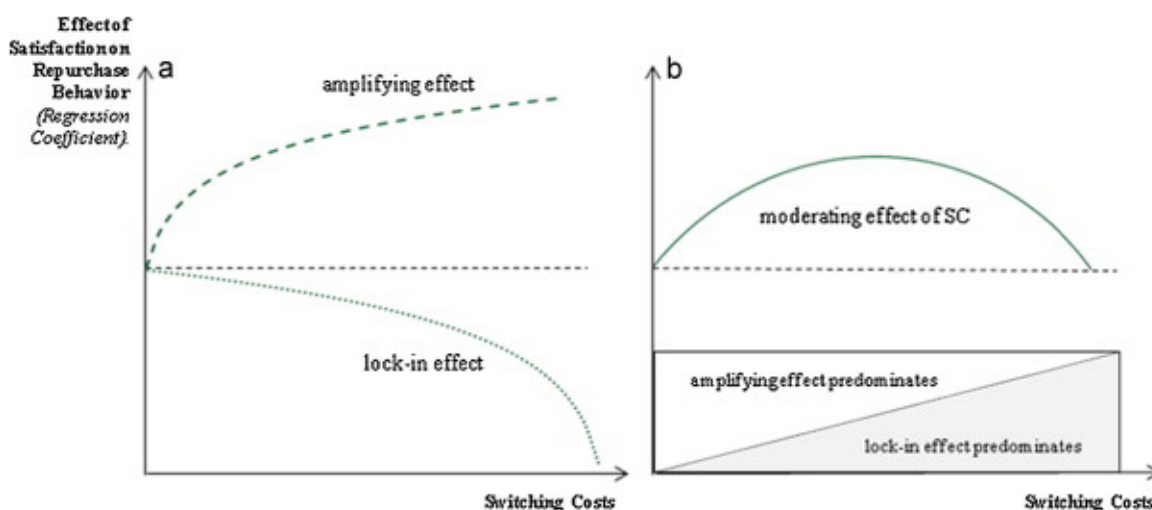
Synthesis of Amplifying and Lock-In Effects

The amplifying and the lock-in effects complement each other, in relation to the level of SC: If SC are low, the amplifying effect exceeds the lock-in effect, so that increasing SC strengthen the satisfaction–repurchase behavior link. In contrast, when SC are high the amplifying effect becomes less important. Therefore, the lock-in effect exceeds the amplifying effect, so that further increases in SC weaken the satisfaction–repurchase behavior link (Fig. 2).

On the basis of this evidence, the moderating effect of SC is expected to follow an inverted u-shape. We assume that the relationship between satisfaction and repurchase behavior will be strongest for intermediate levels of SC, and weaker for low and high levels of SC. Customers with low SC switch due to reasons other than satisfaction. For these customers the link between satisfaction and repurchase behavior is weak. Customers with high SC are unable to switch regardless of their satisfaction. For these customers the link between satisfaction and repurchase behavior is also weak. For an intermediate SC level, the amplifying effect (strengthening the satisfaction–repurchase behavior link) is already relatively strong, whereas the lock-in effect (weakening the satisfaction–repurchase behavior link) is not yet strong enough to compensate. Thus, the link between satisfaction and repurchase behavior is strongest for intermediate levels of SC.

Taking these arguments together, we propose the moderating effect of SC to be inverted u-shaped as shown in Fig. 2.

On the basis of the above arguments, we develop a specific hypothesis regarding the shape of the moderating effect of overall SC (Study 1). We then define SC as consisting of three types, representing positive as well as negative aspects of SC, and investigate how these different types moderate the satisfaction–repurchase behavior link (Study 2).

Study 1: Moderating Effect of Overall switching costs

Hypothesis

Contrary to existing studies that propose either a positive or a negative moderating effect of SC, we specify a nonlinear (quadratic) effect. Combining the amplifying and lock-in effect discussed above, we assume that satisfaction affects repurchase behavior less when SC are low, as customers switch between providers independent of their satisfaction. On the other hand, the influence of satisfaction on repurchase behavior is also weak for high SC, as customers are forced to stay. Finally, medium levels of SC will strengthen the satisfaction–repurchase behavior link. Hence, we hypothesize:

H1.

Switching costs moderate the relationship between satisfaction and repurchase behavior in a curvilinear way (inverted u-shape). The relationship is strongest for an intermediate level of switching costs.

Data and Sampling

Data for the main study (Study 1a) were collected in cooperation with a major European food retailer. Using the members list for the retailer's loyalty program, 6,800 customers were randomly selected to receive questionnaires via postal mail. To differentiate the letter from advertising mails, and to encourage a high response rate, we sent it from the university address of one of our authors. In order to match the survey data with individual transaction data, the loyalty card number was printed on every questionnaire. We enclosed a cover letter explaining the study's objectives, and ensuring data security. Instructions indicated that the questionnaire should be completed by the household member who has primary responsibility for grocery shopping. A prepaid return envelope was enclosed, and the latest possible return date was clearly indicated (Kanuk and Berenson 1975). As further incentive, participants were offered a discount voucher to be awarded after returning the completed questionnaire.

We received a total of 1,881 questionnaires, and 42 letters were returned as undeliverable. Another 65 questionnaires were excluded from the analysis, as less than half of the questions were answered. Thus, the effective response rate was 26.7 percent.

For each customer, survey data were matched to transaction data from the loyalty card program, that is, on an individual level. The survey was conducted at the beginning of 2009, and purchase data were accumulated over the whole of 2009.

The sample characteristics very closely reflected the retailer's general profile of customers. Accordingly, 75.6 percent were female, 32.7 percent were younger than age 40, and 16.0 percent were older than age 65, with a mean age of 47.5 years. For the respondent group, 14.9 percent lived in single households, 37.3 percent lived in two-person households, and 47.8 percent lived in households of three or more persons.

Measurement of Main Constructs

For the survey constructs, we used 7-point Likert scales anchored by "fully disagree" (=1) and "fully agree" (=7).

Customer satisfaction refers to either a particular purchase on a specific occasion (transaction-specific satisfaction), or to an overall purchase experience with a retailer (cumulative satisfaction) (Anderson et al., 1994, Boulding et al., 1993 and Fornell, 1992). Because we analyze the relationship between a retailer and its customers in general, and

not with respect to a specific transaction, we consider cumulative satisfaction—that is, the overall evaluation of customers' former purchase experiences at this retailer. Fornell and colleagues (1996) provide a scale that includes the general satisfaction level, the fulfillment of customer expectations, and the provider's performance compared to customers' view of the ideal providers' performance. We used this scale because it best fits the purpose of our study. Moreover, it has been successfully used in similar contexts (e.g., Burnham et al., 2003 and Gustafsson et al., 2005).

To operationalize switching costs (understood as "overall SC"), we adapted Ping's (1993) scale. We used two items that address the monetary and nonmonetary costs that arise through switching to another organization (see also Jones, Mothersbaugh, and Beatty 2000). Hence, our overall SC construct includes all factors that make switching to a competitor difficult.

Repurchase behavior was based on each customer's annual spending at the focal retailer. As data were gained through the retailer's loyalty card program, all purchases at different stores of the focal retail chain were included.

Confirmatory factor analysis shows that psychometric properties of all constructs meet the generally suggested cut-off values (Appendix 1). The AVE exceeds .50 for both constructs. Discriminant validity is met and loadings on the construct are significant, indicating convergent validity (Fornell and Larcker, 1981 and Hibbard et al., 2001). For the subsequent regression analyses, we used mean scores.

Table 2 shows the descriptive statistics and correlations.

Table 2. - Descriptive statistics and correlations (Studies 1a–1d).

	RB	SAT	SC
Repurchase behavior (RB)	1/1/1/1		
Satisfaction (SAT)	.15***/.09**/.53***/.43**	1/1/1/1	
Switching costs (SC)	.16***/.14***/.27***/.26***	.33***/.58***/.24***/.19***	1/1/1/1
M	1,400.01/467.65/78.57/3.43	6.35/5.46/4.04/4.10	3.77/3.82/3.32/3.45
SD	957.35/778.24/24.83/1.29	.67/1.19/.77/.83	1.41/1.93/.98/1.19

*p < .10.

** p < .05.

*** p < .01.

Note: The correlations for Study 1a (food retailing), Study 1b (DIY retailing), Study 1c (banking), and Study 1d (B-to-B) are separated by a slash as follows: Study 1a/Study 1b/Study 1c/Study 1d.

As the survey included only existing customers of the focal retailer, the satisfaction scores were above the midpoint—that is, they were negatively skewed (skewness = −1.47). This phenomenon is common with satisfaction surveys in competitive markets, but does not pose a major problem, as the satisfaction scores do not vary systematically across our respondents (Fornell, 1995 and Mittal and Kamakura, 2001).

Co-Variable

As Study 1a focusses on one key effect—the moderating effect of overall SC on the satisfaction-repurchase behavior link—there is a risk of estimators being biased and inconsistent due to omitted variables. To overcome that risk, the literature suggests model re-specification by adding important explanatory variables to the regression equation (Greene 2011). A particularly suitable solution to the problem of omitted variables is the inclusion of a lagged dependent variable (e.g., Seiders et al., 2005 and Vogel et al., 2008). We follow that approach for our study. As we have longitudinal data for the dependent variable (repurchase behavior), we construct a "past spending" variable by aggregating purchase data for each customer for the two years prior to the survey. Such a lagged variable captures most historic occurrences that might have caused variation in the dependent variable (e.g., all marketing activities that have influenced repurchase behavior). As a consequence, explained variation in the dependent variable will improve, and omitted variable bias can be dealt with effectively (Leeflang et al., 2000).

In line with previous research, we further include in our model the direct effects of satisfaction and SC on repurchase behavior (e.g., Bolton, 1998, Gómez et al., 2004 and Seiders et al., 2005). Moreover, we include the lower-order interaction term, as well as the quadratic main effect of SC.

Results

We applied hierarchical regressions to test our hypothesis (Table 3). In the first step, we estimated a model including only main effects. In the second and third steps, we added the linear and quadratic interaction terms of SC, respectively. As suggested by the literature, we mean-centered the variables to improve the interpretability of our results (Aiken and West, 1991 and Jaccard et al., 1990). Therefore, in equations with interaction terms, the main effects represent the conditional effect of a certain factor, when all other variables are set to their mean—that is, zero (Aiken and West, 1991, Cohen et al., 2003 and Irwin and McClelland, 2001).

Table 3. - Results of the moderated regression analysis (Study 1a).

|	Model 1 Main effects only			Model 2 Interaction switching costs			Model 3 Quadratic Interaction switching costs		
	b	$ß$	t	b	$ß$	t	b	$ß$	t
Constant	1444.06		70.91***	1443.99		70.88***	1441.46		70.71***
Past spending	.33	.70	40.79***	.33	.70	40.77***	.33	.70	40.82***
Satisfaction	86.69	.06	3.42***	84.51	.06	3.08***	123.17	.09	3.76***
Switching costs	22.67	.03	1.86*	23.06	.03	1.87*	34.62	.05	2.57***
Switching costs2	−19.59	−.05	−3.14***	−18.99	−.05	−2.76***	−14.92	−.04	−2.09**
Satisfaction × switching costs				−3.68	−.00	−.21 (n.s.)	−21.47	−.02	−1.11 (n.s.)
Satisfaction × switching costs2							−20.06	−.06	−2.14**
F-value	447.85 (df = 4)			358.09 (df = 5)			299.79 (df = 6)		
R2 (corr.)	.510			.510			.511		
F-change	−			.04 (df = 1; n.s.)			4.58 (df = 1)**		

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

Model 1 shows that satisfaction (b = 86.69, t = 3.42, p < .01) has a positive effect on repurchase behavior. SC also exert a marginally significant positive main effect (b = 22.67, t = 1.86, p < .10) as well as a negative quadratic effect (b = −19.59, t = −3.14, p < .01), indicating that increasing SC have a positive, concave downward effect on repurchase behavior (Aiken and West 1991). A change of SC affects repurchase behavior less when SC are high than it does when SC are low.

Model 2 shows that the linear moderating effect of SC is insignificant (b = −3.68, t = −.21, n.s.). The significant quadratic interaction term in Model 3 confirms that SC moderate the relationship between satisfaction and repurchase behavior in a nonlinear way. The negative sign indicates that the moderating effect has an inverted u-shape (b = −20.06, t = −2.14, p < .05). Adding this quadratic interaction term significantly increases R^2 (F-change = 4.58; p < .05).

Taking the findings together, Study 1a confirms our hypothesis of an inverted u-shaped moderating effect of SC, as is shown in Fig. 3.

Fig. 3. - Plot of the empirical findings Study 1a.
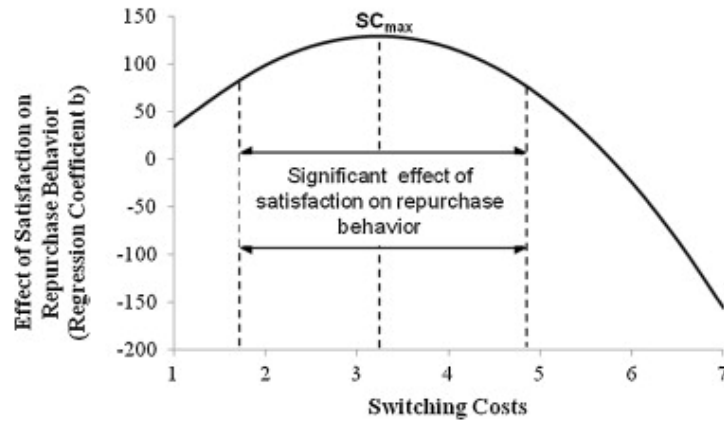
Increasing SC strengthen the link between satisfaction and repurchase behavior to a maximum point (SC_{max} = 3.22). Beyond this point, increasing SC weaken the relationship. Testing the regions of significance shows that the effect of satisfaction on repurchase behavior becomes insignificant if, on a 7-point Likert scale, SC are higher than 4.85 or lower than 1.59 ($p < .05$). If SC are set to their mean, a one-unit change in satisfaction increases customers' annual spending at the focal retail chain, ceteris paribus, by about 123 € (b = 123.43, t = 3.76, $p < .01$).

Replication of Key Findings

To validate the key results of Study 1a, we replicate its findings in three different contexts (see Table 4): DIY retailing (Study 1b), retail banking (Study 1c), and B-to-B services (Study 1d).

Table 4. - Results of replications (Studies 1b, 1c, 1d).

	Study 1b: DIY-retailing			Study 1c: retail banking			Study 1d: B-to-B services		
	b	β	t	b	β	t	b	β	t
Constant	72.47		5.12**	80.55		31.05**	3.94		15.40**
Satisfaction	4.61	.14	2.01*	15.68	.41	3.56**	.90	.57	5.66**
Switching Costs	2.39	.13	2.24*	11.65	.46	3.77**	.26	.22	2.78**
Switching Costs^2	−.06	−.02	−.58 (n.s.)	1.83	.09	.75 (n.s.)	.02	.02	.22 (n.s.)
Satisfaction × switching costs	1.23	.07	.05 (n.s.)	.06	.01	.01 (n.s.)	.10	.08	.88 (n.s.)
Satisfaction × switching costs^2	−.14	−.03	−2.23*	−9.10	−.36	−2.64**	−.17	−.24	−2.06*
R^2 (corr.)	.079	.235	.274						

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

DIY retailing

As was done in Study 1a, we use both survey data and objective customer purchase data (based on loyalty card data) to test Hypothesis 1 for Study 1b. We collected data from a set of 5,695 customers of a major European DIY retailer. Similar to the main study, the dependent variable repurchase behavior was measured as the cumulated spending of each customer for the six months after the survey. Satisfaction and SC were measured with items identical to those in Study 1a (Fornell et al., 1996 and Ping, 1993). Also similar to the main study, results of the regression analysis show that satisfaction (b = 4.61, t = 2.01, $p < .05$) and SC (b = 2.39, t = 2.24, $p < .05$) positively influence repurchase behavior. The quadratic main effect of SC and the linear moderating effect of SC are insignificant ($p > .10$). Also in accordance with the main study – and confirming Hypothesis 1 – we find an inverted u-shaped moderating effect of SC on the satisfaction–repurchase behavior link (b = −.14, t = −2.23, $p < .05$).

Retail banking

For Study 1c, data from 276 (retail) banking customers were collected. We used the same measures as in Study 1a for overall SC and satisfaction, and we measured repurchase behavior with a self-reported "propensity to continue purchasing" (Patterson and Smith 2003). Satisfaction (b = 15.68, t = 3.56, p < .01) and SC (b = 11.65, t = 3.77, p < .01) have positive main effects on repurchase behavior, whereas the quadratic main effect (b = 1.83, t = .75, n.s.) and the linear moderating effect of SC (b = .06, t = .01, n.s.) are insignificant. However, as in our previous studies, we find the quadratic interaction term to be significant (b = −9.10, t = −2.64, p < .01), which confirms Hypothesis 1 again.

B-to-B services

For Study 1d, we collected 214 questionnaires from business customers of a supplier of commercial cleaning services. As before, we used identical measures for satisfaction and SC, and measured the dependent variable with an established repurchase behavior scale (de Wulf et al., 2001 and Zeithaml et al., 1996). Results suggest that satisfaction (b = .90, t = 5.66, p < .01) and overall SC (b = .26, t = 2.78, p < .01) have positive effects on repurchase behavior. We do not find support for the quadratic main effect of SC (b = .02, t = .22, n.s.) or for the linear moderating effect of SC (b = .10, t = .88, n.s.). However, we once again find the significant inverted u-shaped moderating effect of SC (b = −.17, t = −2.06, p < .05). Thus, Hypothesis 1 is also confirmed in B-to-B.

Robustness of Results

In order to ensure the robustness of our results and to rule out potential biases, we conducted several stability tests. First, we replicated the findings of Study 1a with hierarchical linear modeling (HLM), as our data is nested (1,881 observations from 444 outlets). We find an intraclass correlation of less than .1 percent (ICC = .0005), meaning that there is little variation among the 444 outlets from which we drew data. Further, HLM results fully confirm findings for the (OLS) regression analysis. In particular, the inverted u-shaped interaction between satisfaction and SC remains significant.

Second, we tested whether the inverted u-shaped moderating effect could be an artifact of outliers in the data sets. We therefore removed five percent from the bottom of SC, and five percent from the top of SC in all data sets, and then ran the same models again. All substantive results remained unchanged. In particular, the curvilinear effect did not change when the data was removed.

Third, as interactions might be artifacts of significant quadratic effects (Ganzach 1997), we added the squared satisfaction term to all of our models. Again, the effects remained unchanged, indicating a strong robustness of the results.

Fourth, to test whether the findings are confounded, we controlled for an additional construct that has shown to be related to SC: perceived "attractiveness of alternatives" (e.g., Ping, 1993 and Jones et al., 2000). When controlling for the main effect of the attractiveness of alternatives, as well as for its interaction with satisfaction, all substantial results remain unchanged.

On the basis of the additional robustness analyses, we conclude that our results are not biased by nested data, outliers, omitted quadratic effects, or important related constructs.[3]

Discussion of Study 1 Findings

In sum, through the main study (1a) and its replications (1b, 1c, and 1d), Study 1 finds convincing evidence that the inverted u-shaped moderating effect of SC on the satisfaction–repurchase behavior link exists, and that it holds across different settings. The link between satisfaction and repurchase behavior appears to be strongest for customers with medium SC levels. For very low and very high SC, the effect of satisfaction on repurchase behavior becomes insignificant, as is shown in Fig. 3. Hence, if SC are low, customers seem to switch despite being satisfied, and if SC are high they tend to stay despite being dissatisfied. Contrary to previous studies, we do not find evidence for a linear negative effect or a positive moderating effect in any of the industries, because the linear interaction term is insignificant across all four studies. Thus, if the initial SC are low, an increase in SC strengthens the link

between satisfaction and repurchase behavior until a maximum point is reached (the "amplifying effect" of SC). Above this maximum point, a further increase in SC weakens the relationship between satisfaction and repurchase behavior (the "lock-in effect" of SC).

Moreover, it is noteworthy that the inverted u-shaped moderating effect is found for self-reported (i.e., intended) as well as for objectively measured repurchase behavior. As research has shown that customers are sometimes unable to fully incorporate intervening contingencies in their predicted purchase behavior (Seiders et al. 2005), moderating effects on behavior might be underestimated when employing self-reported measures. For this reason, it is important to focus not only on intentions, but to also measure actual behavior. Because we employed both intended repurchase behavior measured through multi-item scales (Studies 1c and 1d), as well as actual behavior measured through sales data (Studies 1a and 1b), we conclude that the results are applicable for intended as well as for actual repurchase behavior.

To further extend insight into this moderating effect, in Study 2 we assess whether the inverted u-shaped moderating effect of SC varies across different SC types.

Study 2: The Moderating Effect of Different Types of Switching Costs

Classification of Switching Costs and Test of Hypothesis

As mentioned, research has identified different types of SC (e.g., Burnham et al., 2003 and Jones et al., 2002). Jones et al. (2007) distinguish between positive and negative SC. On the one hand, SC are defined as positive when any benefit or reward from a current relationship is given up. In the case of switching to a new provider, an individual will have to forego some benefits specific to the existing relationship. On the other hand, negative SC denote an actual loss in terms of money or effort that occurs when switching (Jones et al. 2007). These "out-of-pocket" costs (negative SC) might have different effects than foregone gains (positive SC), as will be argued below (e.g., Carmon and Ariely, 2000 and Thaler, 1985).

Jones, Mothersbaugh, and Beatty (2002), as well as Burnham, Frels, and Mahajan (2003), further differentiate positive SC as relational and financial SC; their studies classify procedural SC as a third type, and categorize them as negative SC. Table 5 provides an overview of the generally accepted SC typology, which we follow in this research.

Table 5. - Categorization of SC.

General distinction	Positive SC (foregone gains)	Positive SC (foregone gains)	Negative SC (actual losses)	Study Jones et al. 2007
Switching costs types	Relational SC	Financial SC	Procedural SC	Burnham, Frels, and Mahajan 2003 Jones et al. 2007
Switching Costs facets	Personal relationship costs Brand relationship costs	Sunk costs Lost performance/benefit loss cost	Uncertainty/economic risk costs Evaluation costs Learning costs/post switching behavioral and cognitive costs Setup costs	Jones et al., 2000 and Jones et al., 2002 Burnham, Frels, and Mahajan 2003

Findings regarding the effects that different SC types impose on loyalty-related constructs are scarce and inconclusive (e.g., Burnham et al., 2003, Jones et al., 2002 and Jones et al., 2007), suggesting the need for more theorizing. In an attempt to do so, we built on Prospect Theory (Kahneman and Tversky 1979, Tversky and Kahneman 1991) to explain the moderating effects of different types of SC.[4]

First, according to Prospect Theory, individuals evaluate gains and losses separately, and in relation to a reference point. Second, individuals are loss averse and tend to overvalue losses in comparison to gains of equal amounts. As a consequence, an individual's value function is steeper for losses than for gains. In choice situations, this phenomenon often manifests as an "Endowment Effect" because individuals value objects they possess more than they value identical objects they do not possess (Thaler 1980). Hence, the utility loss of giving up something that has belonged to one's endowment is larger than the utility gain of acquiring an equivalent object that has not belonged to one's endowment (Tversky and Kahnemann 1991). Third, the value function is s-shaped—concave for gains and convex for losses, such that individuals have a diminishing marginal sensitivity to both losses and gains. In other words, the marginal value of losses and gains decreases with the distance from the reference point (Tversky and Kahneman 1991). This means that for high initial losses (gains), an additional loss (gain) will not be valued as highly as it would for small initial losses (gains). Put differently, the asymmetric effect of losses and gains is especially important for small initial losses and gains.

Since negative SC represent actual losses (e.g., time, money, effort) and positive SC are foregone gains (e.g., not realizing a potential gain such as a financial benefit), in line with Prospect Theory we assume that individuals will overvalue negative SC, as compared to positive SC. Therefore, even low negative SC are relatively painful and are perceived as substantial losses. This overvaluation has consequences for the moderating effect of SC.

As previously argued, if SC are very low, satisfied customers are assumed to switch between different providers in order to reduce staying costs. When SC increase, this switching behavior decreases ("amplifying effect"). This effect is understood to be less important for negative SC: Although customers may face only low negative SC, they will probably not switch if they are satisfied. The reason is that even low negative SC are perceived to be relatively painful and, thus, they prevent satisfied customers from switching. A useful example is a situation of a customer who considers trying a new hair stylist, even though she is satisfied with her current one. Because switching is easy, she may decide to try something new. However, if negative SC slightly increase and she faces even a little extra effort, that is, low procedural SC (e.g., a little more travel time to the new salon), she will no longer consider switching, even though SC are still quite low. The customer will overvalue low negative SC and perceive them as painful, because for her they represent actual losses and mean giving up something that has already belonged to her endowment.

In the case of negative SC, the overvaluation of actual losses—a perception bias—is not as strong for positive SC. The customer who considers switching to a new hair stylist just to try something new will not overvalue slightly increasing positive SC (e.g., relational SC such as a foregone short chat, or financial SC such as a small unused discount from the current hair stylist) to the same extent as negative SC, because positive SC do not represent actual losses but foregone gains (Kahneman, Knetsch, and Thaler, 1991). In other words, the customer would not have to give up something that has already belonged to her endowment. Hence, low positive SC are less able to prevent satisfied customers from switching.

According to the diminishing sensitivity principle, this difference in responding to positive versus negative SC is particularly important for low levels of SC. If a customer faces relatively high initial negative SC (e.g., very inconvenient location of the new hairdresser) or high positive SC (e.g., strong friendship with the current hairdresser), a further increase in SC will no longer be overvalued. The perceptual bias is therefore assumed to be particularly relevant for low SC. Thus, we expect a shift of the amplifying effect for negative SC.

As argued in the previous section, the amplifying effect describes a positive moderating effect for low to medium SC, such that increasing SC strengthen the effect of satisfaction on repurchase behavior. Hence, if low SC are overvalued, that is, if they are valued as being higher or more painful than they actually are, the area of medium SC is reached earlier. As a result, the amplifying effect that is prevalent for low to medium SC becomes less important more quickly, as SC increase (the shifted dashed red line in Fig. 4). However, this shift does not hold for the whole SC continuum (i.e., inverted u-shaped curve). Due to customers' diminishing sensitivity to losses (i.e., convex shape of

the value function), the overvaluation is especially important for low negative SC. In the area of higher SC, we expect the overvaluation and, hence, the shift of the inverted u-shaped curve, to diminish (e.g., Mittal, Ross, and Baldasare, 1998). Consequently, the amplifying effect is more affected by the shift than the lock-in effect. If the amplifying effect becomes less important while the lock-in effect remains unaffected, the inverted u-shaped curve will be flattened in the area of low SC (the solid red line in Fig. 4). Thus, the inverted u-shaped moderating effect will be weakened.

Fig. 4. - Shift of amplifying and moderating effect for negative SC.
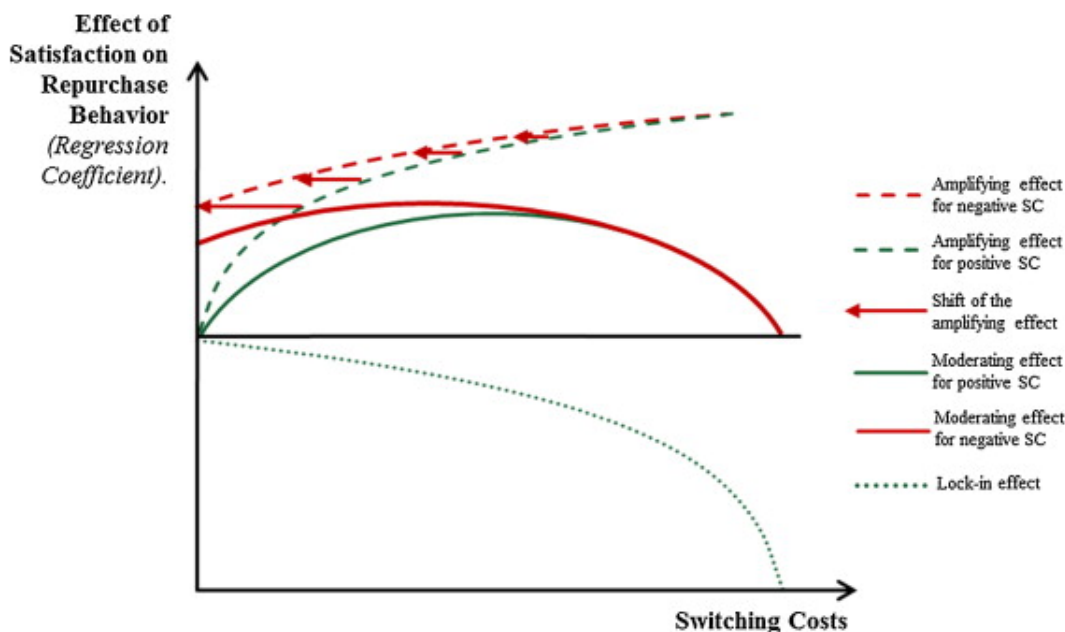
In contrast to negative SC, positive SC represent foregone gains. As the value function is less steep for gains than for losses, the amplifying effect will be less affected. Consequently, for positive SC, the inverted u-shaped curve will remain steeper in the area of low SC than for negative SC (the green line in Fig. 4).

Based on this reasoning, we hypothesize that the inverted u-shaped effect will be stronger for positive than for negative SC:

H2.

The inverted u-shaped moderating effect of SC on the satisfaction–repurchase behavior link is stronger for positive SC (relational and financial) than for negative (procedural) SC.

Data and Sampling

In order to test whether different SC types exert different moderating effects on the satisfaction–repurchase behavior link (Study 2a), we collected data from retail banking customers in cooperation with a European bank (in the same way as for Study 1c). We randomly selected 5,000 customers from the total customer base of about 700,000 customers. As an incentive, the customers could participate in a lottery and win several small prizes. We collected, in total, 300 completed questionnaires. After deleting incomplete questionnaires, we had a final sample of 276 banking customers. As the response rate was comparatively low (6 percent), we tested for a potential non-response bias by comparing the answers of early and late respondents. As we found no differences for any of the relevant variables (i.e., satisfaction, procedural SC, financial SC, and relational SC), we conclude that our sample is not biased by non-respondents.

The sample characteristics represent the total population of this bank: 76.4 percent were male, 36.2 percent were younger than 40, and 12.3 percent were older than 65. The mean age was 43.85 years. 29.5 percent had a monthly income lower than 2,000 € and 8.2 percent had an incomer higher than 4,000 €. The descriptive statistics and correlations of Study 2 are shown in Table 6.

Table 6. - Descriptive statistics and correlations (Studies 2a and 2b).

	RB	SAT	RSC	FSC	PSC
Repurchase behavior (RB)	1/1				
Satisfaction (SAT)	.53***/.43**	1/1			
Relational SC (RSC)	.42***/.31**	.32***/.21**	1/1		
Financial SC (FSC)	.31***/.28**	.27***/.20**	.58***/.40**	1/1	
Procedural SC (PSC)	.18***/.26**	.20***/.18*	.19***/.25**	.27***/.57**	1/1
M	78.57/3.43	4.04/4.10	2.59/2.34	2.40/2.67	3.00/3.31
SD	24.83/1.29	.77/.83	1.03/.95	.74/.93	.87/.90

* $p < .10$.
**$p < .05$.
***$p < .01$.
Note: The correlations for Study 2a (banking) and Study 2b (B2B) are separated by a slash as follows: Study 2a/Study 2b.

Measurement of Main Constructs

For the survey constructs, we used 5-point Likert scales anchored by "fully disagree" (=1) and "fully agree" (=5). For satisfaction, we used the same measure as in Study 1 (Fornell et al. 1996). To measure the three different SC types (relational, financial, and procedural), we referred to the well-established scales by Burnham, Frels, and Mahajan (2003) and Jones, Mothersbaugh, and Beatty (2002). These SC measures capture (i) procedural SC, with its four facets: uncertainty costs, pre-switching search and evaluation costs, post-switching behavioral and cognitive costs, and setup costs; (ii) financial SC with its two facets: sunk costs and lost performance costs; and (iii) relational SC, which consist of brand relationship loss costs and personal relationship loss costs. Finally, we measured the dependent variable repurchase behavior with a self-reported "propensity to continue purchasing" (Patterson and Smith 2003).

Confirmatory factor analysis shows that psychometric properties of all constructs met the generally suggested cut-off values (Appendix 2). We created composite scale means for the three SC-dimensions for inclusion in the regression analyses.

Results

We applied regression analysis to test Hypothesis 2 (Table 7). In three different models, we tested the interplay between satisfaction and the three types of SC. As in Study 1a, we included the main effects of satisfaction and SC, as well as the quadratic SC term, the linear interaction term, and the quadratic interaction term between SC and satisfaction. Variables were mean-centered to ease the interpretation of results.

Table 7. - Results of the moderated regression analysis for three different SC types (Study 2a).

	Financial SC			Relational SC			Procedural SC		
	b	β	t	b	β	t	b	β	t
Constant	81.20		63.03***	80.64		58.99***	78.96		62.41***
Satisfaction	8.78	.35	6.11***	10.63	.42	6.97***	10.49	.41	7.32***
Switching Costs	3.24	.13	2.88***	3.79	.15	2.57**	7.13	.29	6.03***
Switching Costs^2	−2.89	−.15	−3.21***	−2.46	−.15	−2.59***	.07	.00	.08
Satisfaction × switching costs	−1.16	−.05	−1.17	−.84	−.03	−.67	−2.88	−.14	−2.59**
Satisfaction × switching costs^2	−2.62	−.21	−3.39***	−1.60	−.11	−1.85*	.38	.03	.52
R^2 (corr.)	.339	.293	.348						

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

The first model (financial SC) shows that satisfaction (b = 8.78, t = 6.11, p < .01) has a positive effect on repurchase behavior. Financial SC also exert a significant positive main effect (b = 3.24, t = 2.88, p < .01), as well as a quadratic moderating effect (b = −2.62, t = −3.39, p < .01), but no linear moderating effect (b = −1.16, t = −1.17, n.s.).

The second model (relational SC) also indicates a significant main effect of satisfaction (b = 10.63, t = 6.97, p < .01) and relational SC (b = 3.79, t = 2.57, p < .05) on repurchase behavior. Again, we find an insignificant linear moderating effect (b = −.84, t = −.67, n.s.) and a marginally significant quadratic moderating effect (b = −1.60, t = −1.85, p < .10).

Our third model (procedural SC) confirms the two significant main effects of satisfaction (b = 10.49, t = 7.32, p < .01) and procedural SC (b = 7.13, t = 6.03, p < .01) on repurchase behavior. However, contrary to Models 1 and 2, the quadratic moderating effect is insignificant (b = .38, t = .52, n.s.); instead, the linear moderating effect is found to be significant (b = −2.88, t = −2.59, p < .05).

Taking these findings together, the inverted u-shaped moderating effect of SC on the satisfaction repurchase behavior link turns out to be significant for financial SC, marginally significant for relational SC, and insignificant for procedural SC.

Replication of Key Findings

We replicated Study 2a with data from the same B-to-B-context as we used in Study 1d (214 customers of a commercial cleaning service). We differentiate three types of SC (relational, financial, and procedural), which we measure with identical scales, as was done for Study 2a (Burnham et al., 2003 and Jones et al., 2002). All scale reliability and validity values were above the critical cut-off points.

Again, we find positive main effects of satisfaction (financial SC-model: b = .61, t = 5.41, p < .01; relational SC-model: b = .58, t = 4.57, p < .01; procedural SC-model: b = .57, t = 4.91, p < .01) and SC (financial SC: b = .33, t = 3.49, p < .01; relational SC: b = .32, t = 3.44, p < .01; procedural SC: b = .19, t = 2.05, p < .05) on repurchase behavior for all three SC-type models. The quadratic main effect of SC is insignificant for all three SC-types (financial SC: b = −.06, t = −.80, n.s.; relational SC: b = −.03, t = −.37, n.s.; procedural SC: b = .11, t = 1.51, n.s.). The quadratic interaction effect is marginally significant for financial SC (b = −.16, t = −1.90, p < .10) and insignificant for relational (b = −.12, t = −1.21, n.s.) and procedural (b = −.01, t = −.10, n.s.) SC. As in the banking industry, the linear moderating effect of SC is marginally significant for negative (procedural) SC (b = −.16, t = −1.96, p < .10) and insignificant for positive SC (financial SC: b = .01, t = .10, n.s.; relational SC: b = .01, t = .08, n.s.). Hence, we find the inverted u-shaped moderating effect only for financial SC and not for relational SC. As in Study 2a, we do not find support for an inverted u-shaped moderating effect of procedural SC.

Discussion of Study 2 Findings

In sum, the results of Study 2 lead to the conclusion that the inverted u-shaped moderating effect seems to clearly exist for financial SC, whereas it is marginal for relational SC, and cannot be found for procedural SC. These results provide partial support for Hypothesis 2. We can confirm our hypothesis for one type of positive SC (i.e., financial SC). Regarding relational SC, we cannot draw a clear conclusion, because the inverted u-shaped moderating effect of relational SC is only marginally significant for one industry (i.e., banking).

In the banking industry, procedural SC moderate the relationship between satisfaction and repurchase behavior in a negative way. Accordingly, banking customers perceive even small procedural SC as relatively painful and do not switch when they are satisfied. If procedural SC are high, because of the high perceived losses even dissatisfied customers do not adapt their repurchase behavior. This effect is only marginally significant for the B-to-B industry, however, so we can conclude that procedural SC do not affect the satisfaction-repurchase behavior link for business customers to the same extent as for private customers.

In both B-to-B and B-to-C relationships, the link between satisfaction and repurchase behavior is strongest if financial SC are of a medium level. For low financial SC, then, satisfied customers are likely to (occasionally) switch, whereas in

a condition of high financial SC, dissatisfied customers will stay. As mentioned, in B-to-B relationships customers have a tendency to act according to cost-utility considerations. If a focal provider does not offer (business) customers financial incentives or special discounts, those customers may be attracted to competitors. Conversely, if those business customers are offered significant financial benefits, that is, if financial SC are high, they will not switch even if they are dissatisfied.

If procedural SC increase, business and private customers will continue purchasing from their providers, independent of the satisfaction of those customers. In contrast, if procedural SC decrease, customers will behave in accordance with their satisfaction with the provider. Even small procedural SC will be perceived as painful, which will keep satisfied customers from switching. Hence, only customers who are dissatisfied will switch.

Finally, in order to verify our assumption that only positive SC exert an inverted u-shaped moderating effect on the satisfaction-repurchase behavior link, we aggregated the two positive types of SC (i.e., financial and relational SC) to one construct. We tested a model that included all main and interaction effects of positive and negative SC for the banking and for the B-to-B industries. For both industries, we find a significant inverted u-shaped effect of positive SC (banking: $b = -3.47$, $t = -2.07$, $p < .05$; B-to-B: $b = -.15$, $t = -1.82$, $p < .10$). In contrast, for neither industry do we find an inverted u-shaped moderating effect for negative SC.

Discussion

Summary of Findings
The combined findings of Study 1 and Study 2 confirm the theoretical assumption for a nonlinear moderating effect of SC on the relationship between satisfaction and repurchase behavior. It appears that the interplay between amplifying and lock-in effects results in an inverted u-shaped effect. Empirically, this effect holds true across various industries and settings, with different patterns of purchasing behavior and different levels of purchase involvement. Our findings suggest that satisfaction is a particularly important predictor of repurchase behavior in situations characterized by medium levels of SC.

Based on Prospect Theory, our results further show that the inverted u-shaped moderating effect differs between positive and negative SC. For positive SC, we largely confirm that the moderating effect is inverted u-shaped—that is, satisfaction has the strongest impact on repurchase behavior if positive SC are at a medium level. For negative SC, not only does the amplifying effect become less important, but the inverted u-shaped effect weakens and becomes insignificant. Therefore, negative SC do not exert an inverted u-shaped moderating effect on the link between satisfaction and repurchase behavior.

Theoretical Implications
Our research was motivated by the observation that studies on the moderating effect of SC show inconsistent results. We responded to these inconsistencies by theoretically suggesting a nonlinear interaction effect between satisfaction and SC.

First, and in line with Pick and Eisend (2013), we have shown that SC are an important factor when analyzing the relationship between customer satisfaction and repurchase behavior. Our study indicates that SC significantly contribute to a better understanding of this relationship, as they directly affect repurchase behavior—that is, they increase customer spending. In addition, SC interact with satisfaction.

Second, our findings suggest that considering simple linear moderating effects is not sufficient to understand the role of SC. Existing research considering the links between satisfaction and specific outcomes such as repurchase behavior has shown that assuming nonlinear effects is more appropriate to understanding the relationships (e.g., Anderson and Mittal, 2000 and Mittal and Kamakura, 2001). Our study contributes to this research stream by empirically showing that the moderating effects of the satisfaction-behavior link might also be nonlinear. As we have shown, depending on their level, SC can exert positive as well as negative effects on the satisfaction–repurchase

behavior link. Hence, the conclusion of previous research on nonlinear effects also applies to our research: "[T]he danger in viewing the world through a linear and symmetric lens is misallocation of results" (Anderson and Mittal 2000, p. 110).

At first glance, our results contradict previous research that hypothesized either positive or negative linear effects. However, the aim of this study was not to refute existing results, but was, rather, to bring together conflicting theories and to derive a reasonable explanation. Whereas the negative moderating effect of high SC is relatively uncontested, the positive moderating effect of low SC has not been discussed explicitly in the literature. We have argued that customers with low SC change providers due to reasons other than satisfaction. This kind of switching behavior—behavior not due to dissatisfaction—is referred to in the study by Ganesh, Arnold, and Reynolds, 2000 as "extrinsically motivated switching." There are reasons beyond individual attitudes and intentions that drive switching, which from a cost-utility perspective means that even though customers are satisfied, they switch from time to time in order to reduce their staying costs, which arise from a diminishing marginal utility induced by past consumption (Baucells and Sarin, 2007, Faison, 1977 and Zeithammer and Thomadsen, 2013). Increasing SC suppress such behaviors as they compensate for this diminishing utility. Rising SC, therefore, outweigh the benefits that customers would gain from switching and reducing their staying costs. Consequently, switching to less-satisfying alternatives is no longer beneficial, and SC act as an "amplifier" for low to medium SC. We are confident that these results enhance existing research on the moderating effect of SC.

Moreover, to the best of our knowledge, our study is the first to test the moderating effect of SC with actual purchase data, that is, in a real-world setting. Existing research has mainly focused on purchase intentions. However, according to Seiders et al. (2005), customers are usually not aware of the influence of contingency effects and might, therefore, mistakenly predict their actual repurchase behaviors when asked about their intended behavior. Regarding the influence of SC, Zauberman (2003, p. 408) found that "the associated levels of SC on customers' anticipated future switching intentions will be smaller than their effects on actual future switching behavior." The moderating influence of SC on actual purchase behaviors, then, might be underestimated when considering customers' intentions rather than their behavior. For this reason, we believe that it was important to incorporate both repurchase intentions (Studies 1c and 1d) and objectively measured repurchase behaviors (Studies 1a and 1b) to ensure that the estimations and the derived implications are as realistic as possible. Therefore, our research complements existing experimental research (e.g., Zauberman 2003).

Finally, the consideration of different SC types sheds more light on the moderating effect of SC. While the inverted u-shaped effect holds true, in the main, for positive SC, it does not do so for negative SC. Thus, if positive SC are low, customers switch because switching is easy. In contrast, if negative SC are low, customers do not switch, because they evaluate even low negative SC as relatively painful. Customers tend to forego a potential gain in order to reduce staying costs, but they do not want to realize an actual loss. In other words, for low negative SC, customers will act according to their satisfaction: If they are dissatisfied, they will switch to a competitor; if they are satisfied, they will stay. Consequently, we find evidence that the link between satisfaction and repurchase behavior is strongest for medium positive SC and low negative SC.

Managerial Implications

As the empirical analysis has evidenced, the monetary impact of increasing satisfaction is contingent upon SC. This result has important implications for retailers assessing satisfaction management of specific customer segments. We argue that investments in satisfaction should account for SC-levels, because expected return will vary such that satisfaction-enhancing activities are most effective at medium levels of SC. For customers with low SC, it would be reasonable to derive strategies to increase SC, as this would have a dual effect: SC positively affect repurchase behavior, and at the same time they increase the effectiveness of satisfaction management. Conversely, if customers perceive high SC, strategies to increase satisfaction will not directly affect repurchase behavior in the short term, but they may provide benefits when SC decrease—not an unlikely scenario in most markets. At medium levels of SC,

satisfaction management is most important, as investments in satisfaction will have the strongest effect on repurchase behavior.

These implications draw on the inverted u-shaped moderating effect of SC. As shown, however, positive and negative SC differ in their moderating effect. It is therefore important for retail managers to understand the type of SC that should be actively managed, and how the effectiveness of satisfaction management varies as a function of the level of different SC types. In order to illustrate these mechanisms, we calculate two graphs, simulating repurchase behavior as a function of satisfaction, and of positive or negative SC, respectively. All direct effects and their interactions are depicted in Fig. 5, and for illustrative purposes we use the estimated coefficients of Study 2a for procedural and relational SC5:

(a) $RB_{procSC} = 78.96 + 10.49*SAT + 7.13*SC - 2.88*SC*SAT + 0.07*SC^2 + 0.38*SAT*SC^2$

(b) $RB_{relatSC} = 80.64 + 10.63*SAT + 3.79*SC - 0.84*SC*SAT - 2.46*SC^2 - 1.60*SAT*SC^2$

Fig. 5. - Switching cost plots.
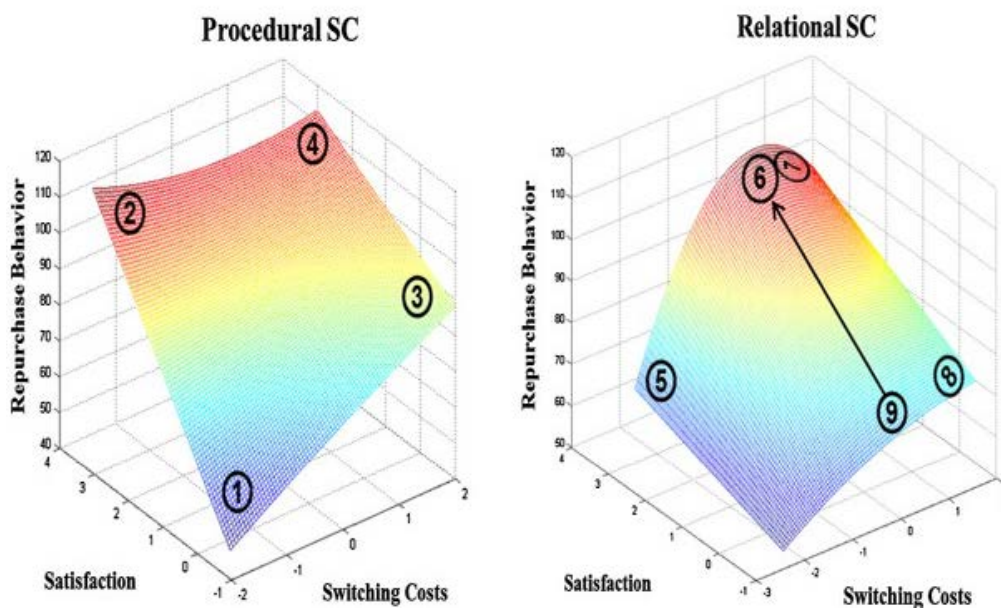
The graphs in Fig. 5 use the colors spectrum to represent the level of repurchase behavior. The colors ranging from red to yellow represent high levels of repurchase behavior; the green to light blue colors represent medium levels; indigo and violet colors represent low levels of repurchase behavior. The circled numbers represent particular local extreme values that are described in detail below.

Fig. 5a shows that for negative (i.e., procedural) SC, repurchase behavior reaches a minimum if satisfaction and SC are low (1). If only satisfaction increases, repurchase behavior rises to a maximum point (2). In contrast, if SC are high (3) and satisfaction increases, the slope is flatter (4), representing the negative moderating (lock-in) effect of SC.

For positive (i.e., relational) SC, the amplifying effect becomes obvious. In case of low SC, repurchase behavior is low, even if satisfaction reaches a maximum level (5). If SC increase, repurchase behavior increases as well (6, 7). For high SC, repurchase behavior is relatively high and the influence of satisfaction is limited (7, 8), representing the lock-in effect. Moreover, increasing SC strengthens the influence of satisfaction, such that repurchase behavior rises to a maximum level if SC are medium and satisfaction is high (6). The effect of satisfaction on repurchase behavior, therefore, is strongest if SC reach a medium level (arrow pointing from 9 to 6).

These results imply that it is important to satisfy customers who face low negative SC. If customers have medium negative SC, satisfaction management is still quite important, although satisfaction will not affect repurchase behavior to the same extent that it does for medium positive SC. Strategies to increase satisfaction have the least payoff for customers with high negative SC, although it might still yield positive returns (depending on the costs of

the measures) to maximize satisfaction for this segment. Beyond this, Fig. 5a shows that there is no need to increase negative SC as long as customers are satisfied. Moreover, it becomes evident that high negative SC do not fully protect against decreasing satisfaction.

For positive SC, we suggest slightly different strategies for satisfaction management. Unlike negative SC, managing satisfaction is an unpromising strategy if customers perceive very low positive SC (Fig. 5b), because repurchase behavior will not increase. Results suggest that if customers have no relational bonds to a focal provider, they will switch independently of their satisfaction. For these customers it is most important to increase relational SC. If relational SC have reached a medium level, satisfaction management becomes a likely successful strategy. For customer segments with high relational SC, it may still be favorable to increase satisfaction, although such an increase would not yield the same outcomes as are achieved for medium SC.

Furthermore, Fig. 5 shows an interesting phenomenon—customers who perceive very high SC have slightly lower repurchase behaviors than customers who perceive medium to high SC. One possible reason for this result is that customers with very high SC may feel entrapped, and as a result develop a feeling of reactance that can negatively affect their repurchase behavior. Furthermore, new customers may avoid switching to a focal retailer that imposes relatively high SC (Burnham et al., 2003, Jones et al., 2000 and Jones and Earl Sasser, 1995).

Whereas strategies for managing satisfaction are quite thoroughly explicated (e.g., Anderson et al., 1994, Gómez et al., 2004 and Westbrook, 1981), knowledge about strategies to influence SC are limited. Table 8 provides an overview of different possibilities for influencing relational, financial, and procedural SC.

Table 8. - Managing switching costs.

	Relational SC	Financial SC	Procedural SC
Retailing	Avoid frequent employee turnover	Financial benefits via loyalty card programs	Self-service technologies
	Personalized product recommendations (e.g., via mobile applications)	Hierarchical loyalty card structure	Simplify shopping trips (e.g., mobile personalized shopping lists)
	Communication on social networks	Coupons for next purchase printed on receipt	Increase convenience (e.g., sufficient parking possibilities, connection to public transport, fast check-outs, no frequent store-layout changes)
	Social engagement		
Financial Services	Personal financial consultants (no frequent changes)	Progressively increasing interest rates for savings	Convenient online banking systems
	Employees remember customers' names, preferences, and habits	Reward point programs	Easy-to-handle mobile banking applications
	Invitations to special events (e.g., talks, shows)	Declining account administration charges	Self-service technologies (e.g., self-service financial kiosks)
		Cash back offers	
		Added-value services (e.g., travel insurance)	
B-to-B services	Employees remember customers' names, preferences, and habits	Special discounts for long-term business partners	Customized services
	Invitations to special events (e.g., product launches)	Free extra services	After-sales service contracts
		Special privileges (e.g., 24-h service, individual contact person)	Consulting services
			Convenient ordering processes

For both relational and financial SC, we derived instruments that create potential gains that customers would forego in the event that they switched. For relational SC, these are primarily strategies to bring the relationship to a higher—that is to say, interpersonal—level. For financial SC, discounts and bonus systems are most important. It is difficult for a provider to directly influence procedural SC, because the provider can only partially control the costs and effort a customer faces when switching. Therefore, it is most important to simplify and customize shopping trips, and to offer a high degree of convenience, such that customers perceive relatively higher costs in case of switching to a competitor.

In summary, retailers and service providers should segment their customers on the basis of their SC. In doing so, it is important to differentiate between positive and negative SC. The various effects of these SC types must be taken into account when deriving strategies for satisfaction management, as well as for SC management. Consideration of the reported insights about SC would help companies to allocate their marketing budgets to the group most likely to react positively to increased satisfaction levels.

Limitations

As is always the case, we have to understand the limitations of our investigation. First, satisfaction values were relatively high in each of our studies—that is, the distribution of the satisfaction data was negatively skewed. This phenomenon is common with satisfaction surveys, as existing customers often rate their focal provider positively (Jones et al., 2000 and Vogel et al., 2008). According to Mittal and Kamakura (2001), this skewness is nonhazardous as long as the data do not vary systematically, though a possibility exists that dissatisfied customers are underrepresented in the samples. Therefore, future studies should explicitly consider dissatisfied customers (e.g., non-customers/infrequent customers). In order to avoid ceiling effects, potential value may exist for researchers to gauge customer satisfaction through use of measures other than 5- or 7-point Likert scales. Studies in this field could draw on scales with more than seven response categories, or they could ask customers explicitly about their degree of dissatisfaction with the retailer.

Second, our studies (1a and 1b) measure repurchase behavior with actual spending at a focal retailer, specifically spending in transactions recorded on loyalty cards. Customer spending is thereby recorded for purchases in all stores of the particular retail chain. Although customers often have one preferred store of the retail chain, their expenditures may be spread over several stores. In our study, consequently, repurchase behavior refers to "retail chain loyalty," and our findings are informative about how to increase repurchase behavior for the entire retail chain. One point that remains unclear, however, is how customers switch between stores of the same retail chain. Although this switching behavior is probably less relevant for practitioners, it may be interesting from a theoretical perspective. Future studies might specifically assess and differentiate "intra-switching costs" (i.e., within the chain) and "inter-switching costs" (i.e., between several chains).

Third, we theoretically argued that increasing SC compensate for the benefits customers gain when reducing their staying costs. As staying costs cover a broad range of different constructs, such as variety seeking, satiation effects, and boredom, it was beyond the scope of this study to test that full range of constructs. However, as more clarification about how these constructs affect repurchase behavior is needed, we suggest that future researchers analyze in more detail the constructs and their interplay with SC and satisfaction.

Fourth, we call on future research to test other possible nonlinear moderating effects on the relationship between satisfaction and repurchase behavior. As research has shown, the links between satisfaction and behavioral or financial outcomes are often nonlinear (Anderson and Mittal 2000). However, the corresponding moderating effects have mostly been modeled as being linear (e.g., Seiders et al., 2005 and Mittal and Kamakura, 2001), whereas nonlinear moderating effects have not been investigated. Future research should address this gap.

Finally, as research has shown, customers are often aware of their SC only when they face a concrete switching decision. Customers who do not consider switching to a new provider might underestimate potential future SC (Soman, 1998 and Zauberman, 2003), so that we expect the detected moderating effects to be stronger when

customers are facing a switching decision. Hence, future research should compare the moderating effects of SC for customers for whom switching is imminent with the moderating effects of SC for customers who do not face a concrete switching decision.

Conclusion

Despite its limitations, we believe that our study contributes to a better understanding of the link between customer attitudes such as satisfaction and actual purchase behavior. By synthesizing a "lock-in effect" with an "amplifying effect," followed by a rigorous empirical test of that resulting effect, we provide a theoretical rationale for an inverted u-shaped moderating effect of SC on the relationship between satisfaction and repurchase behavior. Further, we show that the moderating effect differs between positive and negative SC, such that it holds for positive SC but not for negative SC. On the basis of our findings, researchers and managers should acknowledge that the role of SC is less straightforward than previously expected.

Appendix 1. Scale Origins and Psychometric Properties of Study 1

Construct and scale origin	Composite reliability	AVE	Coefficient alpha	Items	Factor loadings
Satisfaction (Fornell et al. 1996)	.84	.65	.83	Overall, I am satisfied with [X].	.85
				[X] meets my expectations.	.91
				[X] is very close to my "ideal retailer."	.60
Switching Costs (Ping 1993)	.70	.54	.69*	It would take a lot of time and effort to switch to another retailer.	.65
				In general, it would be a hassle to change retailers.	.81

Fit indices: chi-square = 13.83 (4 df); p = .0079; CFI = .997; RMSEA = .037; SRMR = .044

*Correlation between the two items.

Appendix 2. Scale Origins and Psychometric Properties of Study 2

Construct and scale origin	CR	AVE	Coefficient alpha	Items	Factor loadings
Procedural SC (Jones, Mothersbaugh, and Beatty 2002)	.89	.68	.84		
Uncertainty costs	.91	.76	.84	I am not sure what the level of service would be if I switched to a new provider.	.84
				If I were to change providers, the service I might receive at the new place could be worse than the service I now receive.	.93
				The service from another provider could be worse than the service I now receive.	.86
Pre-switching search and evaluation costs	.93	.86	n.a.	It would take a lot of time and effort to locate a new provider.	.93
				If I changed providers, I would not have to search very much to find a new one.	.93
Post-switching behavioral and cognitive costs	.95	.84	.93	If I were to switch providers, I would have to learn how things work at a new one.	.90
				I would be unfamiliar with the policies of a new provider.	.91
				If I changed providers, I would have to learn how the "system works" at a new one.	.95
				Changing providers would mean that I would have learned about the policies of a new one.	.90

Construct and scale origin	CR	AVE	Coefficient alpha	Items	Factor loadings
Setup costs	.94	.85	.91	If I changed providers, it would take a lot of time and effort on my part to explain to the new provider what I like and what I want.	.88
				If I changed providers, I would have to explain things to my new provider.	.93
				If I stopped purchasing from my current provider, I would have to search a lot for a new one.	.95
Financial SC (Jones et al., 2002 and Burnham et al., 2003	.78	. 64	n.a.		
Sunk costs	.92	.69	.88	A lot of energy, time, and effort have gone into building and maintaining the relationship with this provider.	.59
				Overall, I have invested a lot in the relationship with this provider.	.88
				All things considered, I have put a lot into previous dealings with this provider	.85
				I have spent a lot of time and money at this provider.	.88
				I have not invested much in the relationship with this provider (r).	.91
Lost performance costs	.93	.78	.91	This provider gives me particular privileges that I would not receive elsewhere.	.91
				By continuing to use the same provider, I receive certain benefits that I would not receive if I switched to a new one.	.90
				There are certain benefits that I would not retain if I were to switch providers.	.90
				I would lose preferential treatment if changed providers.	.82
Relational SC (Burnham et al., 2003 and Jones et al., 2002)	.78	.64	n.a.		
Brand relationship loss costs	.89	.72	.80	I like my provider's public image	.84
				I support the provider as a firm.	.85
				I do not care about the brand/company name of the provider I use. (r)	.86
Personal relationship loss costs	.92	.75	.88	I have developed a personal friendship with at least one employee at this provider.	.86
				I have a somewhat personal relationship with at least one employee at this provider.	.90
				I am friends with at least one employee at this provider.	.88
				At least one employee is familiar with me personally.	.81
Satisfaction	.92	.79	.86	Overall, I am satisfied with my provider.	.93
				My provider meets my expectations.	.89
				My provider is very close to the "ideal provider."	.84

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1. [1]We used 1989 as the starting year because, to the best of our knowledge, the first important empirical study on the topic was published that year. A list of all 86 studies is available upon request.
2. [2]To assess stability of findings, we defined low SC as ranging from 1 to 3, medium SC as 4 to 5, and high SC as 6 to 7. Results remain unchanged, providing additional confidence in our findings. Following suggestions from the review team, we adjusted the correlations for measurement and sampling error. Results remain stable.
3. [3]Full details of the robustness checks are available upon request.

4. 4Although Prospect Theory was originally developed for decision under uncertainty (Kahneman and Tversky 1979), the implications and principles have since been extended to riskless choices (Tversky and Kahneman 1991). The authors conclude that a "loss aversion coefficient of about two may explain both risky and riskless choices involving monetary outcomes and consumption goods" (Tversky and Kahneman 1991, p. 1054), indicating that losses loom twice as large as equivalent gains. Prospect Theory has been applied by Shankar, Smith, and Rangaswamy (2003), Streukens and de Ruyter (2004), and Wagner, Hennig-Thurau, and Rudolph (2009) in contexts similar to ours (i.e., studies on customer loyalty or switching decisions).
5. 5The graph for financial SC is very similar to the graph for relational SC. Therefore, our argument is more generally for positive SC.