

“The moderating effects of switching costs and inertia on the customer satisfaction-retention link: auto liability insurance service in Taiwan”

AUTHORS	Li-Hua Lai Chun-Ting Liu Jinn-Tyan Lin
ARTICLE INFO	Li-Hua Lai, Chun-Ting Liu and Jinn-Tyan Lin (2011). The moderating effects of switching costs and inertia on the customer satisfaction-retention link: auto liability insurance service in Taiwan. <i>Insurance Markets and Companies</i> , 2(1)
RELEASED ON	Monday, 04 April 2011
JOURNAL	"Insurance Markets and Companies"
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

0



NUMBER OF FIGURES

0



NUMBER OF TABLES

0

© The author(s) 2024. This publication is an open access article.

Li-Hua Lai (Taiwan), Chun-Ting Liu (Taiwan), Jinn-Tyan Lin (Taiwan)

The moderating effects of switching costs and inertia on the customer satisfaction-retention link: auto liability insurance service in Taiwan

Abstract

Satisfaction, inertia, and switching costs are important factors affecting customer retention. However, the moderating effects of inertia and switching costs on the satisfaction-retention link in the auto liability insurance context have not been concluded. The purpose of this paper is to extend and verify such a customer retention model. A questionnaire was constructed and data were collected from 686 policyholders of auto liability insurance in Taiwan. Confirmatory factor analysis and regression techniques were then applied to analyze the data. The results indicate that customer satisfaction, inertia, and switching costs have positive effects on customer retention. For the moderating effect, the impact of satisfaction on customer retention decreases under conditions of high inertia and switching costs. Our findings show that the barriers made by switching costs and the behavioral lock-in effect produced by inertia create a pull-back effect, which prevents customers from switching to another insurance provider even in the face of dissatisfaction with the quality of service by the existing provider. Furthermore, the key findings specify that switching costs strengthen the moderating effect of inertia on the satisfaction-retention link and cause dissatisfied customers to retain their existing transaction relationships.

Keywords: insured satisfaction-retention, switching cost, inertia effect.

Introduction

Satisfaction has typically been viewed as an important determinant affecting customer retention (Oliver, 1980; Fornell, 1992; Anderson and Sullivan, 1993). Researchers, who investigated the satisfaction-retention link, have shown that the relationship is weak and that customers stay with the current provider even though they state to be dissatisfied (Schneider and Bowen, 1999). Anderson and Srinivasan (2003) investigate the inertia that deterred dissatisfied customers from moving to an alternative provider. The inertia is the repeat purchase of the same brand passively and without much thought (White and Yanamandram, 2004). With inertia, customers exhibit repeated purchasing behaviors in spite of their negative perceptions about the existing service provider (Chintagunta and Honore, 1996; and White and Yanamandram, 2004). Abovementioned research results indicate that although satisfaction has an impact on loyalty, this relationship is moderated by inertia.

Furthermore, previous literature also has examined the impact of switching costs on customer retention (Jones, Mothersbaugh, and Beatty, 2000; Lee, Lee, and Feick, 2001; and Ranaweera and Prabhu, 2003) and has shown that switching costs present barriers to exit by customers and contribute to decision of customers to keep their existing transaction relationships even in the face of dissatisfaction. Previous studies have successfully identified inertia and switching costs that moderate the link between satisfaction and customer retention and that can partially explain the weak overall relationship. The abovementioned results could be an important issue in that the impact of satisfaction on customer retention decreases under conditions of high inertia and switching costs.

When customers want to switch insurance companies, they must pay greater switching costs in terms of search costs (the costs of time spent for searching information about claims settlement service, investment behavior, and financial stability of insurance companies, etc.) and transaction costs (the costs of time and effort needed for bargaining price and administrative activities), according to existing literature review on insurance, particularly from Berger, Kleindorfer, and Kunreuther (1989), Posey and Yavas (1995), Posey and Tennyson (1998), Schlesinger and Schulenburg (1991), and Eckardt (2008). There is a high degree of information asymmetry that exists between insurance companies and customers. In general, customers are placed in a weak position in terms of insurance information (Cummins and Doherty, 2006). These costs enable the insurance company to exert a certain degree of monopolistic power over its current customers (Williamson, 1979). In addition, a predominant feature of the insurance industry is that only a relatively small number of customers exit from their current insurance companies (Crosby and Stephens, 1987). Crosby and Stephens (1987) indicate that after purchasing the insurance policy, many policyholders probably put the insurance policy away and forget it for extended periods of time. Without a triggering cue, such as a call from an outside agent or sales staff, the policy is protected from termination by the policyholder's own inertia. Furthermore, since auto insurance in Taiwan is a homogenous contract¹, customers who are lazy or do not want to put forth the necessary effort are strengthened in their desire to save time or avoid new choices, causing customers to remain in their existing transaction relationships in consideration of a lack

¹ This study focuses on auto liability insurance in Taiwan since auto liability insurance contracts currently sold by Taiwanese insurance companies have identical contract terms and contents, and thus these can be viewed as homogenous contracts.

of heterogeneity between contracts (Bloemer and Kasper, 1995). Switching costs and inertia necessarily play a critical role in customer retention in the auto insurance market. This study focuses greatly on this subject due to shortcomings in previous research. Next, when customers find that switching auto insurance providers require renewed expenditures in switching costs, such as search costs and transaction costs, lazy customers may willingly fall into inertial behaviors to avoid paying so many costs again. Customers may choose their previous service providers, thus manifesting the behavioral lock-in effect (Barnes, Gartland, and Stack, 2004). This phenomenon suggests that switching costs further cause inertia to reduce the impact of satisfaction on customer retention. Previous literature generally only discussed the impact of either switching costs or inertia on customer retention and did not integrate switching costs and inertia to examine the impact of the interaction effect between the two on the satisfaction-retention link. A question that should be examined in greater depth is: Do the barriers made by switching costs and the behavioral lock-in effect produced by inertia create a pull-back effect, which prevent customers from abandoning transaction relationships even in the face of dissatisfaction with service quality? The customer retention based on inertia and switching costs has primarily focused on the service industry, and little research concentrates on the insurance industry. We hypothesize that the barriers to customer exit presented by switching costs strengthen the impact of inertia in weakening the relationship between satisfaction and customer retention in the auto liability insurance market. In this study, we use the theory of the relationship marketing and questionnaire data, build a sample empirical analysis of the relationship marketing on customer retention, satisfaction, inertia, and switching costs of auto liability insurance in property and casualty insurance, and then perform regression techniques to test the effects of the abovementioned issues. The findings of this study have implications on both theory and practice.

This paper is organized as follows. Section 1 presents the literature review and hypothesis. Section 2 describes the data, including market analysis, data collection and sample characteristic analysis. Section 3 discusses the methodology, including factor constructs measurement, confirmatory factor analysis and regression analysis. Section 4 explains research results, discussion, and implications and a conclusion ends the paper in the final Section.

1. Literature review and hypothesis

1.1. Customer satisfaction as a driver of customer retention. Satisfaction is defined as the degree of overall pleasure or contentment felt by the customer, resulting from the ability of the service to fulfill the customer's desires, expectations, and

needs (Hellier, Geursen, Carr, and Rickard, 2003). Customer retention is defined as the future propensity of a customer to stay with the service provider (Morgan and Hunt, 1994). Customer satisfaction can increase customer retention, lower price sensitivity, help gain market share from competitors, reduce costs of attracting new customers, and improve a firm's market reputation (Sheth and Sisodia, 1999). Conceptually, higher satisfaction should diminish the perceived benefits of switching service providers, thus produce higher customer retention (Anderson and Sullivan, 1993). As a result, many service providers adopt strategies to improve customer satisfaction with the goal of strengthening ties with customers and increasing customer retention (Ravald and Gronroos, 1996). Many other studies have shown that satisfaction positively impacts on customer retention (Bolton, 1998; Cronin and Taylor, 1992; Danaher and Mattsson, 1998; Fornell, 1992; Jones et al., 2000; Mittal and Lassar, 1998; Oliver, 1980; Ranaweera and Prabhu, 2003; Ranaweera and Neely, 2003; Swan and Trawick, 1981; Taylor and Baker, 1994; and Tsoukatos and Rand, 2006). To be consistent with previous research, we therefore hypothesize that:

H1: Customer satisfaction has a positive effect on customer retention.

1.2. Inertia as a driver of customer retention. Inertia is illustrated as a consistent pattern of purchasing the same brand almost every time a consumer shops. This is manifested by purchase of a brand out of habit and merely because less effort is required (Solomon, 1994) to do so. With inertia, the customer does not find it worthy to spend time and go through the decision process entailed in selecting another brand (Asael, 1998). Inertia is a non-conscious form of human emotion, and it has been conceptualized as a single dimensional construct consisting of "passive service patronage without true loyalty" (Huang and Yu, 1999). True loyalty is a propensity to make a repeated purchase that is enduring and constant over time, whereas the effect of inertia is repeated purchase made passively without much thought or that is done despite negative perceptions of the customer about a brand (Chintagunta and Honore, 1996). With regard to insurance industry, many policyholders probably put their insurance policies away and forget about those (Crosby and Stephens, 1987). Without a triggering cue, such as a call from an outside agent or sales staff, the policy is protected from termination by the policyholder's own inertia. Hence, it is expected that the more inert the policyholders are, the higher probability there is for the customers to stay with their current auto insurance providers. Accordingly, we introduce the following hypothesis:

H2: The higher is the level of inertia, the greater is the level of customer retention.

1.3. Moderating effect of inertia. Inertia is the repeat purchase of the same brand passively without much thought (White and Yanamandram, 2004). The repeated purchasing behaviors may even be in spite of the consumer's negative perceptions about the brand (Chintagunta and Honore, 1996; and White and Yanamandram, 2004). Anderson and Srinivasan (2003) use e-commerce as a case to study and test the moderating effect of inertia between satisfaction and loyalty. Their results show that when customers have a higher level of inertia, the impact of satisfaction on loyalty decreases; conversely, a lower level of inertia is associated with a greater impact of satisfaction on loyalty. It is evident that inertia has an impact on customer consideration of feasible replacements and that customers with higher level of inertia do not consider choosing alternative service providers even in the face of dissatisfaction. As a result, we suggest that when customers have a high level of inertia, the impact of satisfaction on customer retention decreases. Thus, we hypothesize the following:

H3: When customers have a high level of inertia, the impact of satisfaction on customer retention decreases.

1.4. Switching costs as a driver of customer retention. Switching cost is formally defined as the cost of changing services in terms of time, monetary value, and psychological factor (Dick and Basu, 1994). In the insurance market, switching costs may be incurred from switching from current insurer to another (Williamson, 1979). Such costs may include search costs (the costs of time spent for searching information about claims settlement service, investment behavior, and financial stability of insurance companies, etc.) and transaction costs (the costs of time and effort needed for bargaining price and administrative activities) (Berger et al., 1989; Eckardt, 2008; Posey and Yavas, 1995; Posey and Tennyson, 1998; Schlesinger and Schulenburg, 1991; and Williamson, 1979). These costs enable the insurer to exert a certain degree of monopolistic power over its current customers (Williamson, 1979). Thus, once an auto insurance company is chosen, there exists a switching cost for changing insurers, thus reducing the intention of customers to switch (Dahlby and West, 1986; and Schlesinger and Schulenburg, 1993). Switching costs make changing service providers more expensive and create a dependence of the customer on the service provider (Morgan and Hunt, 1994). As perceived switching costs increase, customers are less likely to change service providers (Ping, 1993; Bansal and Taylor, 1999; Jones et al., 2000; Lee et al., 2000; and Ranaweera and Prabhu, 2003). Thus, the larger are the switching costs, the higher is the customer retention of the same service provider. In line with previous research, we hypothesize that:

H4: Perceived switching costs have a direct positive effect on customer retention.

1.5. Moderating effect of switching costs. While the main effect of switching costs on customer retention has been empirically supported in a number of studies, some papers also have examined the moderating effect of switching costs on the satisfaction-retention link. Jones et al. (2000) suggest that when perceived switching costs are lower, unsatisfied customers are less willing to stay than satisfied customers; when perceived switching costs are higher, unsatisfied customers keep their current providers. Their results indicate that the impact of core-satisfaction on repurchase intentions decreases under conditions of high switching costs. Some empirical studies have shown that the relationship between satisfaction and customer retention is weak: as switching costs increase, sensitivity of customers to satisfaction diminishes (Hauser, Simester, and Wernerfelt, 1994; Jones et al., 2000; and Lee et al., 2000). Therefore, another hypothesis is:

H5: As perceived switching costs increase, the relationship between satisfaction and customer retention diminishes.

When customers want to switch insurance companies, they must pay higher switching costs, particularly search and transaction costs. Customers who are lazy or who find the process troublesome will willingly fall into inertial tracks to avoid repaying the said costs; these customers choose to remain with their current service providers, manifesting a behavioral lock-in effect (Barnes et al., 2004). This phenomenon occurs due to the high degree of information asymmetry present in the insurance market. For customers who lack insurance information, it is necessary to search for relevant insurance information, and evaluate and select service providers with better service quality when they want to choose a new insurance company with whom they wish to establish a relationship. When customers perceive that they must spend a greater amount of time and effort to search for and choose service providers with better service quality, customers with higher levels of inertia are more willing to maintain current transaction relationships, manifesting the behavior lock-in effect. Thus, switching costs produce barriers to customer exit and strengthen inertia in weakening the impact of satisfaction on customer retention. Accordingly, we present the following hypothesis:

H6: As perceived switching costs increase, the moderating effect of inertia on the relationship between satisfaction and customer retention strengthens.

2. Data

2.1. Market analysis. Marketing channels of auto insurances in Taiwan include broker and independent agent channels and direct writer channel. The empirical analysis is based on data from the auto insurance

market in Taiwan. The annual worth of the auto insurance providers is \$44.4 billion in premiums (2008), of which 27.7, 7.7, 24.7, and 39.9 percent are accounted for by auto damage insurance, theft insurance, voluntary third party liability insurance, and compulsory liability insurance, respectively. There are 14 major providers of auto insurance in the market, the concentration index from 2007 to 2009 is 0.1133, 0.1110, and 0.1079, respectively¹. The highest market ratio is lower than 25% and the market share from the second to fifth places is about 10%-6%, therefore, the market may be considered reasonably competitive. To compare the customer retention under identical contracts, we used as samples policyholders who had simultaneously purchased compulsory auto liability insurance and voluntary auto third party liability insurance. These policyholders constituted over 64% of the renewal business in the Taiwanese auto insurance market. Thus, it helped us to observe the intention of customers in staying with their existing insurance companies after their auto insurance contracts expire.

2.2. Data collection and sample characteristics. Our sample included individual customers who simultaneously purchased compulsory auto liability insurance and voluntary auto third party liability insurance in Taiwan. To ensure that the sample data had regional representativeness, we distributed 600, 300, and 300 surveys each in the northern, central, and southern regions of Taiwan. Here, we chose to distribute 1200 copies of the questionnaires to obtain a reliable sample size (about 700 questionnaires) because we estimated that the recovery rate of questionnaires will be 60% upon distribution. Individual surveys were distributed via insurance sales staff. In other word, questionnaires were distributed through staffs of the insurance company. Those who were insured with an age of 18 years old and above (only people above the age of 18 could get their driver's license) and who have bought the voluntary auto third party liability insurance were qualified as respondents of the questionnaire. Hence, the objects that the questionnaires were distributed to were not specifically screened, but they conformed to the actual situation in the Taiwan market. The survey distribution period of this paper lasted from January to June 2009. A total of 785 questionnaires were collected. After discarding 99 incomplete questionnaires which among the questionnaires collected, 99 questionnaires had incomplete answers and were thus deleted. The final sample size was 686. The empirical literature of relationship marketing places no strict limitation on the size of the samples to ensure credibility. Note that we have listed several empirical articles referred to by this paper to prove the proper size of the samples.

The literature we listed here described the size of samples (between 200 and 600). These articles were all published in the management and marketing journals (Danaher and Mattsson, 1998; Jones et al., 2000; Lee et al., 2001; Morgan and Hunt, 1994; Ranaweera and Prabhu, 2003; Ranaweera and Neely, 2003; Tsoukatos and Rand, 2006). Hence, the size of the samples in this paper (686) shall be reasonably regarded as reliable. Table 1 shows the samples characteristics of the demographics. In terms of gender, male respondents constituted 57.0% of the overall sample; female respondents made up 43% of the sample. In terms of age, the primary age range of correspondents was between 31 and 50 years, and these respondents accounted for 62.2% of the overall sample. In terms of education background, university or college graduates accounted for the highest proportion of respondents at 41.5%. A majority, or 54.8%, of respondents lived in northern Taiwan. With regard to the samples obtained through the questionnaire, the percentages in terms of gender, age, and education were quite close to those of the entire population². This could prove the representativeness of the sample data as described in this paper.

Table 1. Sample characteristic

Sample characteristic	Items	Population percent (%)	Frequency (N=686)	Sample percent (%)
Gender	Male	56.20%	391	57.0%
	Female	43.80%	295	43.0%
Respondent age	18-30	23.03%	130	19.0%
	31-40	28.68%	217	31.6%
	41-50	27.01%	210	30.6%
	Over 51	21.28%	129	18.8%
Education	Doctor and master	46.03%	75	10.9%
	University or college graduates		285	41.5%
	Senior high school graduates	34.55%	270	39.4%
	Junior high school graduates	19.42%	56	8.2%
Residence areas	Northern region	45.48%	376	54.8%
	Central region	25.45%	155	22.6%
	Southern region	29.07%	155	22.6%

Table 2 illustrates the descriptive statistics and simple bi-variate correlation coefficients among the factor constructs. The results suggest significant positive effects of satisfaction, inertia and switching costs on customer retention, with inertia explaining a higher proportion of variance in the dependent variable customer retention (*CR*) than satisfaction (*S*) and switching costs (*SC*).

¹ We use the market share of all insurers to calculate the Herfindahl Index as the concentration index.

² We took the demographics of those who are employed (above the age of 15) from the Directorate General of Budget, Accounting and Statistics, Executive Yuan, Taiwan, as the population percentage because the voluntary auto third party liability insurance in Taiwan does not include education and income as factors for risk classification.

Table 2. The descriptive statistics and correlation coefficients of the variables

Variables	Mean	Standard deviation	Maximum	Minimum	CR	S	I	SC
Customer (CR)	5.063	1.242	7	1	1			
Satisfaction (S)	4.050	1.377	7	1	0.445*	1		
Inertia (I)	4.652	1.170	7	1	0.557*	0.622*	1	
Switching costs (SC)	4.299	1.397	7	1	0.494*	0.223*	0.334*	1

Note: * Correlation is significant at 0.01 level.

3. Methodology

Our methodology covers three procedures. The first procedure described the steps in measuring factor constructs, i.e., how to produce questionnaire items for factor constructs. The subsequent process examined whether or not the reliability and validity of questionnaire items conform to standard values with the confirmatory factor analysis and indexes, which include the Model Fit Index in Table 3 and reliability and validity of questionnaire items for confirmatory factor analysis in Table 4. After having examined that the questionnaire items for factor constructs indeed conformed to the reliability and validity levels, we averaged the scores of the questionnaire items for factor constructs. The last step was to execute the regression analysis to validate the hypothesis in this paper. Pursuant to the steps of study in this text, we designed the structure of methodologies into factor constructs measurement, confirmatory factor analysis, and regression analysis. Each of these procedures is discussed below.

3.1. Factor constructs measurement. Measures for all factor constructs were taken from the existing literature. Customer retention, satisfaction, switching costs, and inertia were all measured using multiple items, seven-point Likert scales. The customer retention items were based on Morgan and Hunt (1994). Respondents were instructed to rate their intention to stay with their current auto insurance company in the future. The satisfaction items were an adaptation of those used by Hellier et al. (2003) and aided in the evaluation of the degree of overall pleasure or contentment felt by the customer resulting from the ability of the service provider to fulfill the customer's desires, expectations, and needs in relation to the service. The items that measured inertia were adopted from Huang and Yu (1999), and Anderson and Srinivasan (2003). The measures show a consistent pattern of purchasing an insurance contract from the same

insurer in the future; the insurance is purchased out of habit merely because less effort is required to do so and since the customer does not find it worthy to go through another decision process entailed in looking for another service provider. To measure switching costs, we adopted the items from Jones et al. (2000), captured costs across a variety of dimension, and focused on the overall perception of time, money, and effort associated with switching auto insurance companies. All questionnaires of the four factor constructs are provided in Table 4. We then employed confirmatory factor analysis to confirm the reliability and validity of the factor constructs measurement.

3.2. Confirmatory factor analysis. We tested the factor constructs measurement via confirmatory factor analysis (CFA) using AMOS 4.0. The fit index of CFA is shown in Table 3. Results indicated that although the chi-square statistic was significant [chi-square (59) = 101.71; $P < 0.01$] as is common with large sample sizes and as root mean square residual (RMR) exceeded the suggested value, the CFA nonetheless revealed a relatively good fit to the data [chi-square (59) = 101.71, $p = 0.00$, $GFI = 0.978$, $AGFI = 0.966$, $CFI = 0.993$, $RMR = 0.055$, $RMSEA = 0.033$], confirming the efficiency of our measurement model. With regard to reliability and validity, the results are shown in Table 4. The scales showed acceptable reliability as all coefficient alphas were greater than 0.8 (Nunnally, 1978). In addition, all measures of composite reliability were greater than 0.80, and all average variance extracted (AVE) estimates were greater than 0.5 (Fornell and Larcker, 1981). Given evidence of convergent validity, all the items had significant loadings on their respective factor constructs (Anderson and Gerbing, 1988). Discriminant validity was evidenced by the fact that none of the confidence intervals of the phi estimates between the pairs of constructs included 1.0 (Anderson and Gerbing, 1988). Table 4 summarizes the results of the item description, factor loading, AVE, reliability, and validity test.

Table 3. Summary of fit indices of the model

Fit indices	χ^2	P	$\chi^2 / d.f. \text{ ratio}$	GFI	$AGFI$	CFI	RMR	$RMSEA$
Value	101.71	0.000	1.724	0.978	0.966	0.993	0.055	0.033
Suggest value		>0.05	<3	>0.90	>0.90	≥ 0.95	<0.05	<0.07

Note: $\chi^2 / d.f. \text{ ratio} < 3^{21}$, $GFI > 0.90$, $AGFI > 0.90^{20}$, $CFI \geq 0.95^{24}$, $RMR < 0.05$, $RMSEA < 0.07^{21}$.

Table 4. The reliability and validity of the factor constructs measurement

Factor constructs/item	Factor loading	t-value	Coefficient alpha	Composite reliability	Average variance extracted
Customer retention					
I intend to remain with my current auto insurance company when my contract expires.	0.836	-	0.899	0.899	0.749
I intend to remain with my current auto insurance company for the two years.	0.899	28.399	0.899	0.899	0.749
I intend to remain with my current auto insurance company for the next few years.	0.860	26.783	0.899	0.899	0.749
Reference: Morgan and Hunt (1994)					
Satisfaction					
I am pleased that I purchased auto insurance from the company.	0.889	-	0.910	0.914	0.729
My decision to purchase auto insurance from the company was a wise one.	0.912	34.068	0.910	0.914	0.729
I feel good about my decision to purchase the company's auto insurance.	0.868	31.805	0.910	0.914	0.729
I would positively recommend the company's auto insurance to other people.	0.735	23.362	0.910	0.914	0.729
Reference: Hellier et al. (2003)					
Inertia					
Unless other companies provide very advantageous conditions, I'm already used to getting auto insurance from this company.	0.795	-	0.857	0.870	0.692
Unless I became very dissatisfied with this auto insurance company, changing to a new one would be a bother.	0.785	20.428	0.857	0.870	0.692
Unless I became very dissatisfied with this auto insurance company, switching to a new one is very inconvenient for me.	0.910	21.110	0.857	0.870	0.692
References: Huang and Yu (1999) and Anderson and Srinivasan (2003)					
Switching costs					
For me, the costs in time, money, and effort to switch auto insurance company are high.	0.845	-	0.904	0.905	0.760
In general it would be a hassle changing auto insurance company.	0.877	28.053	0.904	0.905	0.760
It would take a lot time and effort changing auto insurance company.	0.893	28.800	0.904	0.905	0.760
Reference: Jones et al. (2000)					

3.3. Regression analysis. Marketing literature generally conducts the regression analysis on the average of scores for questionnaire items for factor constructs. This paper followed here the practice of the literature mentioned above and took the averages of customer retention, satisfaction, inertia, and switching costs. To provide empirical evidence to our hypotheses, we proposed an ordinary least squares (OLS) regression for the dependent variable *CR*, which represented the intention that the customers would continue to stay with their current auto insurance company in the future. For the proposed model, we employed six independent variables: the continuous variable for satisfaction, inertia, switching costs, and their binary and ternary interaction terms. To test this, we constructed the following model:

$$CR = \beta_0 + \beta_1 \cdot S + \beta_2 \cdot I + \beta_3 \cdot SC + \beta_4 \cdot S \cdot I + \beta_5 \cdot S \cdot SC + \beta_6 \cdot S \cdot I \cdot SC + \varepsilon_i,$$

where *CR* represented the customer retention, *S* represented the satisfaction, *I* represented the Inertia, *SC* represented the switching costs, *S · I* represented the binary interaction term of satisfaction and inertia, *S · SC* represented the binary interaction term of satisfaction and switching costs, *S · I · SC* represented the ternary interaction term of satisfaction, inertia and switching costs, and ε_i was the error term. We then conduct the regression analysis on the aver-

age of scores for questionnaire items for customer retention, satisfaction, inertia, and switching costs.

In this model, we were interested in the regression coefficient of the satisfaction, inertia, switching costs, and their interaction term. We expected the regression coefficients of satisfaction, inertia and switching costs to be positive ($\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$) as the higher the level of satisfaction, inertia, and switching costs, the higher the level of customer retention. In addition, a negative correlation may exist between the binary interaction and customer retention ($\beta_4 < 0$, $\beta_5 < 0$), since the impact of satisfaction on customer retention decreases under conditions of high inertia and switching costs. The most interesting outcome was the regression coefficient of the ternary interaction term; we predicted this coefficient to be negative ($\beta_6 < 0$), which means that as perceived switching costs increase, the moderating effect of inertia on the relationship between satisfaction and customer retention strengthens.

4. Empirical model and results

4.1. Regression model. This study utilized regression analysis to test the hypotheses. Four regression models were established for this study. In Table 5, Model 1 contains the direct effect of satisfaction, inertia, and switching costs. Models 2 and 3 add binary interaction terms between inertia, switching costs, and satis-

faction to the main effects model. Model 4 incorporates the ternary interaction effect of switching costs, inertia, and satisfaction.

However, to prevent interference with regression coefficient estimates resulting from multicollinearity problems between interaction variables in the model, we changed the origin of each continuous independent variable through standardization (see Aiken and West, 1991; Irwin and McClellan, 2001; and Ranaweera and Prabhu, 2003). The resultant models are shown in Table 5. These show that the VIF (variance inflation factor) corresponding to each independent variable is less than 4, indicating that the variance inflation factors are well within the acceptable limit of 10 (Ranaweera and Neely, 2003).

In Model 1, the results show support to all the main-effects predictions. Consistent with H1, H2, and H4, results indicate that customer satisfaction ($\beta = 0.151$, $P = <0.01$), inertia ($\beta = 0.349$, $p < 0.01$), and switching costs ($\beta = 0.344$, $p < 0.01$) each has a significant impact on customer retention. Next, we tested for whether inertia and switching costs moderate the relationship between satisfaction and customer retention. Results of the Model 2 also support the H3. The significant binary interaction between inertia and

satisfaction indicates that the relationship between satisfaction and customer retention depends on the level of inertia ($\beta = -0.072$, $p < 0.05$). The interaction's negative sign supports our prediction that as inertia rises, the association between satisfaction and customer retention diminishes. Model 3 shows that switching costs and satisfaction also have a significant negative interaction effect ($\beta = -0.192$, $p < 0.01$), indicating that the association between satisfaction and customer retention depends on the switching costs. The interaction's negative sign also supports our prediction that as switching costs increase, the relationship between satisfaction and customer retention diminishes. This result also supports H5.

Finally, we also present that the ternary interaction effect of switching costs, inertia, and satisfaction is significant and negative, thus confirming H6. The significant ternary interaction's negative sign also supports our prediction that as switching costs increase, the negative moderating effect of inertia on the relationship between satisfaction and customer retention strengthens ($\beta = -0.098$, $p < 0.01$) as shown in Model 4. This indicates that switching costs and inertia, where appropriate, can be an effective, alternative means of strengthening customer retention.

Table 5. Regression models testing main and interaction effects of satisfaction, inertia and switching costs on customer retention

Explanatory variable	Dependent variable: customer retention (CR)					
	Expected sign	Model 1 β (t-value)	Model 2 β (t-value)	Model 3 β (t-value)	Model 4 β (t-value)	VIF
Main effects						
Satisfaction (S)	+	0.151*** (4.097)	0.176*** (4.605)	0.269*** (5.792)	0.280*** (6.025)	2.666
Inertia (I)	+	0.349*** (9.144)	0.349*** (9.185)	0.320*** (8.272)	0.335*** (8.622)	1.871
Switching costs (SC)	+	0.344*** (11.326)	0.333*** (10.773)	0.466*** (9.494)	0.504*** (9.926)	3.193
Binary interaction effects						
S-I	-		-0.072** (-2.360)	-0.062** (-2.034)	-0.076** (-2.473)	1.182
S-SC	-			-0.192*** (-3.468)	-0.183*** (-3.320)	3.771
Ternary interaction effects						
S-I-SC					-0.098*** (-2.746)	1.566
Adj R ²			42.9%	43.3%	44.2%	44.7%
F-value			172.486**	131.625**	109.410**	93.309**

Notes: Regression parameters (β_i) are standardized value. *** significant at 1%, ** significant at 5%.

4.2. Discussion and implications. This study uses auto liability insurance service as a case for study. The implications for both theory and practice are discussed below.

From a related theory view, this paper moves beyond satisfaction and suggests that inertia and switching costs are also important factors affecting customer retention. The main effects of the three variables are all statistically significant and have correct signs. A

positive relationship exists between satisfaction and customer retention. Thus, a plan for creating customer satisfaction is a necessary means of maintaining sustained customers, and high service quality is a critical element in determining repurchases by customers (Tsoukatos and Rand, 2006). In addition, switching costs make barriers to customer exit and inertia causes customers to remain in their existing behavioral tracks. However, the impact of satisfaction

on customer retention is not as important as that of inertia and switching costs. It is apparent that inertia and switching costs play important roles when customers decide whether or not to remain with their current auto insurance providers. For the moderating effects, our results show that inertia and switching costs weaken the impact of satisfaction on customer retention. Switching costs play a role in presenting barriers to customer exit, while inertia causes customers to remain in existing behavior tracks and produce a behavior lock-in effect. Customers with larger switching costs or with higher level of inertia are better able to tolerate dissatisfaction and remain with current service providers. Furthermore, the key findings also reveal that switching costs strengthen the moderating effect of inertia on the satisfaction-retention link. In other words, the barriers made by switching costs to customer exit strengthen the behavior lock-in effect produced by inertia and cause dissatisfied customers to raise their retention. Thus, to reduce the intention of customers to switch service providers, insurance companies should construct transaction models with switching costs to activate customers' existing inertia as a marketing strategy to strengthen customer retention.

From insurance practice view, the key findings indicate that insurance companies should build up switching costs to retain existing customers despite their lack of satisfaction with poor service quality.

In the insurance market, customers who have established close relationships with sales staff have higher customer retention, particularly since they face uncertainties in the reduction of service quality if they purchase insurance from a new company. In addition, due to the high degree of asymmetric information in the insurance market, customers who lack adequate information must search again for relevant insurance information and must make an assessment of available services to select a new insurance company if they want to switch insurers. When a customer perceives that he/she must spend a greater amount of time and energy to search and select a service provider with better service quality, the appropriate use of positive switching costs, such as the emotional relationship established by sales staff and the maintenance of interpersonal ties (Jones, Reynolds, Mothersbaugh and Beatty, 2007), make imitation by competitors difficult, facilitating customer retention.

However, if a customer uses the network for a long time, some regularities of this customer will be revealed, thus generating customer habit (Wang, Fang, and Yun, 2006). As a result, through the conventional access, the Internet can be used to create a convenient space for consumers. For example, an

insurance company can construct a user-oriented website design, including varied content and consultation, to strengthen the level of inertia. Due to security concerns about the Internet, insurance companies must also strengthen users' confidence in the security of Internet use to ensure the safety of Internet transactions and establish mechanisms for identifying verification. Insurance companies also may change the usage model for insurance renewal through convenient Internet operations, incentivizing customers to enter inertia tracks and improving customer retention.

Finally, higher switching costs cause customers to keep existing transaction relationships and strengthen the moderating effect of inertia on the satisfaction-retention link. Auto insurance providers should actively try to strengthen ties with existing customers. Insurance companies can appropriately combine with other financial institutions to use cross-selling strategies and develop an integrated electronic financial business mechanism to satisfy the one-stop shopping needs of customers. When customers can purchase other different types of insurance policies from their existing insurance companies, they face higher risk and increase their switching costs when they switch to other insurance companies. However, in Taiwan, all insurers use age and gender as the primary determination of human factors. The claim records of the tariff rating system operate through the bonus-manus coefficient. An important feature of the bonus-manus coefficient is that the coefficient belongs to the policyholder due to the claim information-sharing system. A policyholder cannot take a new coefficient when he/she wants to switch insurers, therefore, insurers can not be allowed to charge different premium and use different risk classification variables, but are permitted to charge different prices due to various discount on their premium.

Developing multiple financial services with customers can deepen mutual dependence and can induce the formation of inertia by raising switching costs. By doing so, these lazy customers may choose their previous service providers, producing the behavioral lock-in effect, facilitating customer retention. However, we emphasized that increasing the switching cost for customers is only a means for marketing and insurance companies to ensure service quality. If the insurance company only considers the increase in switching cost for customers and forces the customers to remain in the existing transaction relationship without increasing customer satisfaction, they cannot avoid the negative word-of-mouth by customers, and against the target of developing a long-term relationship. Hence, it becomes an important concern when modern service quality and regulation theory are applied to insurance.

Conclusion

The previous section has examined satisfaction, inertia, and switching costs as the drivers of customer retention. Our research attempts to build a more complete framework of the factors that influence customer retention. Nevertheless, this paper has some limitations that offer opportunities for future research. First, this study is limited to the exploration of the effects of inertia and switching costs on the customer retention of homogeneous contract. In the future, under the wave of differentiated services, various companies will design insurance products matching their respective market segments. Thus, with regard to differentiated insurance contract, the reexamination of the relationship between the abovementioned variables is a topic worth studying. Second, our questionnaires did not ask whether customers recently made a claim. However, the intention of retaining these customers could be different from those who did not make the claim because customers will decide whether or not they will stay based on the service of the claim settlement, thus, the claims experience should be added

to the customer retention model. Moreover, the change of premium upon policy renewal is related to the existence of claim in the last policy year because the auto insurance market in Taiwan has implemented the experience rating system for years. Under Taiwan's experience rating system, the claim information sharing system is shared between insurance companies. No matter which company the customer goes to, the same premium shall be charged. Hence, we reasonably expect that the change of premium will not influence the intention of customers to remain in the original insurance company. Finally, it is notable that this study utilizes cross-sectional survey data to test the hypotheses. However, Crosby and Stephens (1987) indicate that cross-sectional survey data may show that customers have a first-mover mentality, thus lead to a further deviation of analysis results from the topic. Thus, it is recommended that future studies utilize two stage, inter-period survey data to compensate for this flaw. This method is beneficial toward testing the theories and connotations behind customer retention.

References

1. Aiken, L.S. and S.G. West (1991). Multiple Regression: Testing and Interpreting Interactions, Sage Publications, New York, NY.
2. Anderson, J.C. and D.W. Gerbing (1988). Structural equation modeling in practice: a review and recommended two-step approach, *Psychology Bulletin*, 103, pp. 411-423.
3. Anderson, R.E. and S.S. Srinivasan (2003). E-satisfaction and e-loyalty: a contingency framework, *Psychology and Marketing*, 20, pp. 1-16.
4. Anderson, E.W. and M.W. Sullivan (1993). The antecedents and consequence of customer satisfaction for firms, *Marketing Science*, 12, pp. 125-143.
5. Assael, H. (1998). Consumer Behavior and Marketing Action, Southwestern College Publishing, Cincinnati, OH.
6. Barnes, W., M. Gartland, and M. Stack (2004). Old habits die hard: path dependency and behavioral lock-in, *Journal of Economic Issues*, 38, pp. 371-377.
7. Berger, L.A., P. Kleindorfer and H. Kunreuther (1989). A Dynamic Model of the Transmission of Price Information in Auto Insurance Markets, *Journal of Risk and Insurance*, 56, pp. 17-33.
8. Bloemer, J.M. and H. Kasper (1995). The complex relationship between consumer satisfaction and brand loyalty, *Journal of Economic Psychology*, 16, pp. 311-329.
9. Bolton, R.N. (1998). A dynamic model of the duration of the customer's relationship with a continuous service provider: the role of satisfaction, *Marketing Science*, 17, pp. 45-65.
10. Chintagunta, P.K. and B.E. Honore (1996). Investigating the effects of marketing variables and unobserved heterogeneity in a multinomial probit model, *International Journal of Research in Marketing*, 13, pp. 1-15.
11. Cronin, J.J. and S.A. Taylor (1992). Measuring service quality: a reexamination and extension, *Journal of Marketing*, 56, pp. 55-68.
12. Crosby A. and N. Stephens (1987). Effect of Relationship marketing on satisfaction, Retention, and Prices in the Life Insurance Industry, *Journal of Marketing Research*, 24, pp. 404-411.
13. Cummins J.D., and N.A. Doherty (2006). The Economics of Insurance Intermediaries, *Journal of Risk and Insurance*, 73, pp. 359-396.
14. Dahlby, B. and D.S. West (1986). Price Dispersion in an Automobile Insurance Market, *Journal of Political Economy*, 94, pp. 418-438.
15. Danaher, P.J. and J. Mattsson (1998). A comparison of service delivery processes of different complexity, *International Journal of Service Industry Management*, 9, pp. 48-63.
16. Dick, A. and K. Basu (1994). Customer loyalty: toward an integrated conceptual framework, *Journal of Academy of Marketing Science*, 22, pp. 99-113.
17. Eckardt, M. (2008). The quality of insurance intermediary service-empirical evidence for Germany, Working paper 50 (Rostock: Rostock University).
18. Fornell, C. and D.F. Larcker (1981). Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research*, 18, pp. 39-50.

19. Fornell, C. (1992). A national customer satisfaction barometer: the Swedish experience, *Journal of Marketing*, 56, pp. 6-21.
20. Hair, J.F., W.C. Black, B.J. Babin, R.E. Anderson, and R.L. Tatham (1995). *Multivariate data analysis: with readings*, Prentice-Hall, Englewood Cliffs, London.
21. Hair, J.F., W.C. Black, B.J. Babin, R.E. Anderson, and R.L. Tatham (2006). *Multivariate Data Analysis*, 6th edn, Pearson-Prentice-Hall, New Jersey.
22. Hauser, J.R., D.I. Simester, and B. Wernerfelt (1994). Customer satisfaction incentives, *Marketing science*, 13, pp. 327-350.
23. Hellier, P.K., G.M. Geursen, R.A. Carr, and J.A. Rickard (2003). Customer repurchase intention: a general structural equation model, *European Journal of Marketing*, 37, pp. 1762-1800.
24. Hu, L. and P.M. Bentler (1999). Cutoff criteria for fit indexes in co variance structure analysis: conventional criteria versus new alternatives, *Structural Equation Modellin*, 6, pp. 1-55.
25. Huang, M.H. and S. Yu (1999). Are consumers inherently or situationally brand-loyal? A set intercorrelation account for conscious brand loyalty and nonconscious inertia, *Psychology and Marketing*, 16, pp. 523-544.
26. Irwin, J.R. and G.H. McClellan (2001). Misleading heuristics and moderated multiple regression models, *Journal of Marketing Research*, 38, pp. 100-115.
27. Jones, M.A., D.L. Mothersbaugh, and S.E. Beatty (2000). Switching barriers and repurchase intention in service, *Journal of Retailing*, 76, pp. 259-274.
28. Jones, M.A., K.E. Reynolds, D.L. Mothersbaugh, and S.E. Beatty (2007). The positive and negative effects of switching costs on relational outcomes, *Journal of Service Research*, 9, pp. 335-355.
29. Lee, J., J. Lee, and L. Feick (2001). The impact of switching costs on the customer satisfaction-loyalty link: mobile phone service in France, *Journal of Services Marketing*, 15, pp. 35-48.
30. Mittal, B. and W.M. Lassar (1998). Why do customers switch? The dynamics of satisfaction versus loyalty, *Journal of Services Marketing*, 12, pp. 177-194.
31. Morgan, R.M. and S.D. Hunt (1994). The commitment trust theory of relationship marketing, *Journal of Marketing*, 58, pp. 20-38.
32. Nunnally, J. (1978). *Psychometric Theory* (2d ed), New York: McGraw-Hill.
33. Ping, R.A. (1993). The effects of satisfaction and structural constraints on retailer exiting, voice, loyalty, opportunism, and neglect, *Journal of Retailing*, 69, pp. 320-352.
34. Posey, L. and A. Yavas (1995). A Search Model of Marketing Systems in Property-Liability Insurance, *Journal of Risk and Insurance*, 62, pp. 666-689.
35. Posey, L. and S. Tennyson (1998). The Coexistence of Distribution Systems Under Price Search: Theory and Some Evidence from Insurance, *Journal of Economic Behavior and Organization*, 35, pp. 95-115.
36. Oliver, R.L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions, *Journal of Marketing Research*, 17, pp. 460-469.
37. Ranaweera, C and J. Prabhu (2003). The influence of satisfaction and trust and switching barriers on customer retention in a continuous purchasing setting, *International Journal of Service Industry Measurement*, 14, pp. 374-395.
38. Ranaweera, C and A. Neely (2003). Some moderating effects on the service quality-customer retention link, *International Journal of Operations and Production Management*, 23, pp. 230-248.
39. Ravald, A. and C. Gronroos (1996). The value concept and relationship marketing, *European Journal of Marketing*, 30, pp. 19-30.
40. Schlesinger, H. and J.M. Schulenburg (1991). Search Costs, Switching Costs and Product Heterogeneity in an Insurance Market, *Journal of Risk and Insurance*, 58, pp. 109-119.
41. Schlesinger, H. and J.M. Schulenburg (1993). Consumer Information and Decision to Switch Insurers, *Journal of Risk and Insurance*, 60, pp. 109-119.
42. Schneider, B. and D. Bowen (1999). Understanding customer delight and outrage, *Sloan Management Review*, Fall, pp. 35-45.
43. Sheth, J.N. and R.S. Sisodia (1999). Revisiting Marketing's Lawlike Generalizations, *Journal of the Academy of Marketing Science*, 27, pp. 71-87.
44. Solomon, M.R. (1994). *Consumer Behavior: Buying, Having and Being*, 2nd ed., Paramount Publishing, Boston, MA.
45. Swan, J.E. and I.F. Trawick (1981). Disconfirmation of expectations and satisfaction with a retail service, *Journal of Retailing*, 57, pp. 49-67.
46. Taylor, S.A. and T.L. Baker (1994). An assessment of the relationship between service quality and customer satisfaction in the formation of consumers' purchase intentions, *Journal of Retailing*, 70, pp. 163-178.
47. Tsoukatos, E. and G.K. Rand (2006). Path analysis of perceived service quality, satisfaction and loyalty in Greek insurance, *Managing Service Quality*, 16, pp. 501-519.
48. Wang, P., B. Fang, and X. Yun (2006). A New User-Habit Based Approach for Early Warning of Worms, *Computational Intelligence and Security*, 38, pp. 212-219.
49. Williamson, O.E. (1979). Transaction-Cost Economics: the Governance of Contractual Relations, *Journal of Law and Economics*, 22, pp. 233-262.
50. White, L. and V. Yanamandram (2004). Why customers stay: reasons and consequences of inertia in financial services, *Managing Service Quality*, 14, pp. 183-194.