

Can perceived risks affect the relationship of switching costs and customer loyalty in e-commerce?

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Purpose - The purpose of this study is to verify the relationship between switching costs and customer loyalty in e-commerce.

Design/methodology/approach –This study conducted an empirical research. 425 online shopping customers were invited from northeastern United States as samples.

Findings – The findings of this study show that switching costs positively influence customer loyalty. In addition, perceived risks will affect the relationship of switching costs and customer loyalty. For customers with low perceived risks, switching costs are also positively associated with customer loyalty. However, for customers with high perceived risks, the relationship of switching costs and customer loyalty is weak or negative.

Research limitations/implications – One limitation is that mostly students were selected in our sample. The insights of this study can further validate the previous studies about the relationship of switching costs and customer loyalty, and suggest perceived risks can be a moderating factor affecting this relationship.

Practical implications – This study can suggest the practitioners further understand the relationship among switching costs, perceived risks, and customer loyalty for their customers.

Originality/value – This study contributes to the knowledge of perceived risks and how to affect switching costs to customer loyalty, particularly in e-commerce.

Keywords: switching costs, customer loyalty, perceived risks, e-commerce.

Paper type: Research paper

1. Introduction

Switching costs play the role of exit barrier in the relationship between buyers and sellers (Weiss and Anderson, 1992; Smith, 1998; Jones, Mothersbaugh, and Beatty, 2000). Due to this invisible exit barrier, customers would consider the switching costs when they decided to change suppliers (Jackson, 1985). There are more studies focused on how switching costs affect customer loyalty in the telecommunication sector (Caruana, 2004; Aydin and özer, 2005; Hu and Hwang, 2006). For example, switching costs for cell phone users will be the purchase of a new cell phone, the new rate, the violation penalty, etc. Hence, switching costs can be seen as costs that deter customers from purchasing rival firm's products.

There are different views of switching costs from previous studies. Jones and Sasser (1995) found customer switching costs would be varied by different industry sectors. If products or services can be offered by various suppliers, customers would have low switching costs to the specific supplier, as with the automobile industry. However, switching costs for customers would be high if products or services are only supported by few suppliers, such as in the airline industry. Hence, switching costs for customers are slightly industry-specific. However, some scholars believed that switching costs include not only objectively measurable monetary costs, but also the time and psychological effort involved in facing the uncertainty of dealing with a new

service provider (Dick and Basu, 1994). Hence, switching costs are partly customer-specific. In addition, switching costs would be created by suppliers using personalization pages, e-communities, recommendation systems, and 1-click technology, etc. (Xue, Ray, and Whinston, 2006). Hence, switching costs could be supplier-made. Otherwise, the sources of switching costs to customers in e-commerce would be obviously different in the telecommunication sectors (Park and Kim, 2003; Bateson, 1985). For example, if a customer has been using Gmail for a long time, s/he would be reluctant to change this mail since it will be a great effort to notify her/his friends and relatives. The other example is online purchase. If the customer purchased products from a specific website, perhaps s/he would be reluctant to change this website because s/he cannot ensure that the new supplier is better than the old one. Therefore, switching costs would have more psychological factors for online customers.

Although switching costs are opportunity costs of customer perception when customers switch to other suppliers, perceived risks may be the other factor which will influence customer purchase intention. Forsythe and Shi (2003) found customers may hesitate to shop on the Internet due to the concerns about various perceived risks, including financial risk, time/convenience risk, psychological risk, etc. Furthermore, Salam, Rao, and Pegels (2003) stated perceived risks can be reduced by institutional

trust and economic incentives. Obviously, perceived risks are negatively associated with trust. Carter, et al. (2009) used trust as a moderator, and demonstrated that the relationship of switching costs and customer loyalty will be stronger when trust is high. However, customers with high perceived risks may have low trust or distrust toward the websites. Can these customers change the relationship of switching costs and customer loyalty? That is, when customers have high perceived risks to the websites, even though high switching costs are sustained, will they switch to other websites? In fact, perceived risks are the same important factors as many antecedents (e.g. trust, satisfaction, etc.) to customers purchasing online (Ibáñez, Hartmann, and Calvo, 2005). However, there are few studies to identify the impacts of perceived risks influencing the relationship between switching costs and customer loyalty.

Therefore, the primary purposes of this study are two-fold. First, to explore the relationship between switching costs and customer loyalty in e-commerce. Second, to join perceived risks as a moderating variable and examine how perceived risks affect the relationship of switching costs and customer loyalty in e-commerce.

2. Literature Review and Hypotheses Development

2.1 Switching costs

Porter (1980, p.10) defined switching costs as “one time costs facing the buyer

of switching from one supplier's product to another's"; that is, switching costs can be conceptualized as the perception of the extent of the additional costs required to terminate the current relationship and secure an alternative. Switching costs, however, may comprise psychological and emotional costs (Keaveney, 1995). For example, when personal rapport and trust have been built up over a period of time between the service provider and the customer, then this is likely to present a psychological exit barrier (cost), even when performance of the core service is less than satisfactory. It seems like a case of the "devil you know is better than the devil you don't" (Morgan and Hunt, 1994).

Despite switching costs having been studied broadly in the service sector, there are still some major differences between online services and in-store services. First, customers can instantly get the service through the Internet without being limited by time and space. Thus, customers can buy products on the Internet at any time and any places, but this does not apply to in-store services. Second, customized services are provided by online websites. Customers can receive various product information and useful recommendations from other websites, such as chat rooms and review websites, to make a purchase decision, but again, this does not apply to in-store services. Third, search engines are powerful tools for reducing customer's asymmetric information. Customers can easily find the lowest price through search engines, but not through

in-store services. Hence, online customers will not be affected by some tangible switching costs (e.g. set-up costs, contract costs, or learning costs, etc.) for online shopping, but may have economic costs and psychological problems instead. For example, online customers are more concerned about searching costs, history information, and alternative suppliers' service quality, etc. Therefore, with respect to the characteristics of e-commerce, we can assume switching costs for online customers mainly consists of economic costs and psychological costs.

2.2 Customer loyalty

Customer loyalty was approached predominantly in consumer behavior research from a behavioural perspective for a long time (Oliver, 1999; Zeithaml, Berry, and Parasuraman, 1996; Raju, Srinivasan, and Lal, 1990; Pessemier, 1959; Rundle-Thiele and Mackay, 2001). Jones and Sasser (1995, p94) stated that customer loyalty is “a feeling of attachment to or affection for a company’s people, products, or services”. Dick and Basu (1994) supplemented the behavioural approach with the concept of relative attitude which reflects the degree to which the customer’s evaluation of one service dominates that of another. They affirmed that true loyalty only exists when repeat patronage coexists with a high relative attitude. Therefore, customer loyalty is approached as an attitudinal construct (Azjen and Fishbein, 1980). Söderlund(2006)

employed repatronage intentions and word-of-mouth intentions as a subset of loyalty intentions. This distinction between action and talk is a critical issue in organizational theory (Feldman and March, 1981). Based on a favorable attitude towards a service provider, customers may develop preference loyalty. Preference loyalty can work in two ways. The customer may consult the website if s/he wishes to make a purchase (action), or to recommend it to others (talk).

Except for preference loyalty, de Ruyter, Wetzels, and Bloemer (1998) also found price indifference and dissatisfaction response, both would affect customer loyalty while they conducted investigations in health centres (hospitals, physiotherapy and chiropractic clinics) and city theatres (including opera houses). However, price indifference may not be appropriate for e-commerce to use for measuring customer loyalty, because competitive price is the main reason for online shoppers purchased on the Internet (Ernst & Young, 2000). Besides, unlike health centres or theatres, customers can freely purchase products or services from various suppliers, but professional doctors for patients or unique opera for audiences both can not be substituted. Therefore, we infer that customers may have the unwillingness to pay a premium price for suppliers on the Internet.

For dissatisfaction response, Hirschman(1970) argued that a dissatisfied customer has basically two options for a negative (service) experience, one is

discontinue the relationship (exit) and the other is communicate dissatisfaction (voice).

As usual, dissatisfied customers will voice their complaints to the service provider (e.g. via a toll free number), its employees or external agencies such as customer organizations. Therefore, dissatisfaction response can be a construct of customer loyalty for e-commerce because we can easily browse many positive or negative comments from online consumer experiences posted on different websites. The higher the dissatisfaction response is, the lower the customer loyalty. Hence, dissatisfaction response is a negative indicator of customer loyalty, whereas preference loyalty is a positive indicator of customer loyalty.

Past studies have shown that switching costs are positively associated with customer loyalty in the telecommunication sector (Hu and Hwang, 2006; Ibáñez, et al., 2005; Caruana, 2004). When customers have high switching costs toward the websites, they will have the high willingness to reponage and tolerate dissatisfaction responses. That is, switching costs are positively associated with preference loyalty, and switching costs are negatively associated with dissatisfaction response. Therefore, this study brings forth the first hypothesis (H1) and the second hypothesis (H2):

H1: Switching costs have a positive influence on preference loyalty in e-commerce.

H2. *Switching costs have a negative influence on dissatisfaction response in e-commerce.*

2.3 Perceived risks affect the relationship of switching costs and customer loyalty

The concept of perceived risks denotes customers have a feeling of psychological uncertainty when they cannot predict the outcome of a purchase decision (Bauer, 1960). Cox (1967) found that perceived risks come from the customers' uncertainty about what decision can satisfy their goals, or assume that the products or services can not satisfy the customers after purchased. Van den Poel and Leunis (1999) pointed out that perceived risks associated with online retailers are negatively associated with the willingness to adopt online purchasing. Parasuraman (2000) noted that insecurity negatively affects technology adoption. Lu and Su (2009) also argued that anxiety has a significantly negative influence on information system adoption. Literature related to online shopping (Furnell and Karweni, 1999; Liang and Huang, 1998; Hine and Eve, 1998) shows that risk components (e.g. privacy concerns, security uncertainty, ordering or delivery, and distrust of e-tailers) are associated with an unwillingness to adopt online purchasing. Therefore, customer purchase intention in e-commerce can be affected by perceived risks.

However, there are different types of perceived risks on the Internet for

customers, including channel-related risk, product-related risk, and social-related risk (Gutiérrez, Izquierdo, and Cabezudo, 2009). Channel-related risk perception refers to customers feeling the tension or anxiety caused by online buying. Product-related risk perception refers to customers concerning whether the product will fail to meet their expectations. Social-related risk perception is associated with the opinions of customers' family or friends when buying online. Thus, customers with high channel-related risk perception will be inclined not to purchase on the Internet. Customers with high product-related risk perception will not buy or use these unreliable products. Customers with high social-related risk perception will avoid buying the contradictive products their family or friends recommended. In this study, we will explore how perceived risks affect switching costs and customer loyalty in e-commerce from the customer-website viewpoint. Hence, this study assumes customer's perceived risks are channel-related risk perception.

As usual, new customers or dissatisfied customers would have high perceived risks toward the websites, since they have no transactional experiences or have suffered negative experiences in the past. Therefore, these customers' switching costs would be low. However, satisfied customers would have low perceived risks toward the websites, because satisfaction has a positive influence on trust (Chiao, Chiu, and Guan, 2008), and trust negatively affects customer perceived risks. Hence, customers

with low perceived risks will repeatedly purchase from the websites, and their switching costs can be incremental. As a result, customer loyalty will also be high. Hence, when customers have low perceived risks, the relationship of switching costs and customer loyalty would be strongly positive. On the contrary, customers with high perceived risks will not likely purchase from these websites. They will be highly reluctant to make a relationship with the websites, even though they have high switching costs on the websites. Hence, the relationship between switching costs and customer loyalty will be affected by perceived risks in e-commerce. Switching costs are positively associated with customer loyalty for customers with low perceived risks, but switching costs associated with customer loyalty for customers with high perceived risks are negative. Therefore, this study brings forth the third hypothesis (H3) and two sub-hypotheses (H3a and H3b):

H3: The relationship of switching costs and customer loyalty will be affected by perceived risks in e-commerce.

H3a: Switching costs are positively associated with customer loyalty for customers with low perceived risks.

H3b: Switching costs are negatively associated with customer loyalty for customers with high perceived risks.

3. Method

3.1 Research framework

According to the above arguments, this study brings forth the research framework shown in Figure 1.

Insert Figure 1 about here

3.2 Measures

The switching costs scale was developed by modifying scales used in Sharma and Patterson (2000) because economic costs and psychological problems were referred to as switching costs in their study. The total of items is four. A seven-point scale is used: 1 = “strongly disagree” and 7 = “strongly agree”.

The customer loyalty scale includes three dimensions developed by de Ruyter, et al. (1998). However, the dimension of price indifference was removed. The total of items is five for preference loyalty, whereas the total of items is four for dissatisfaction response. A seven-point scale is used: 1 = “strongly disagree” and 7 = “strongly agree”.

Perceived risks are measured using five items from modified statements found in Choi and Lee (2003). Since perceived risks represent the consumers’ feeling of

insecurity, if the customer feels safe, it means the customer has low perceived risks.

Hence, a seven-point scale is used: 1 = “strongly agree” and 7 = “strongly disagree”.

To examine the preliminary instrument for face validity, we invited three experts with online shopping experience who are assistant professors of a university to assist.

They suggested that we remove one item of switching costs “I would feel frustrated if I terminate my current relationship with the supplier.” and one item of dissatisfaction response “I will switch to a competitor if I experience a problem with its service.”

from the original scale, because both of them are highly associated with customer loyalty. This result can ensure our instrument fitting this study. Overall, the variable items of this study are shown in Table 1.

Insert Table 1 about here

3.3 Subjects

Data was collected for two months at a major city in northeastern United States, and we investigated the respondents who have online shopping experience through social networks. We employed 12 graduated students who are in science, engineering, and business colleges respectively, to find the qualified respondents from their classmates and friends in the Institute. The total number of respondents was 472, of

which we deleted 47 copies that contained conflicting, incomplete, or double answers. Hence, the valid respondents totaled 425. Females (55.7%) outnumbered males (44.3%). Undergraduates (62.5%) and the 20-29 age group (54.1%) were the largest in this study. Student (60.7%) was the largest group for occupation.

To identify the representative of American customer's population, respondents were asked to select favorite shopping products on the Internet. From American online consumer investigation, we can find the largest four product categories purchased on the Internet in 2006 were (1) Computer hardware and software, (2) Consumer electronics, (3) Books, music and videos, and (4) Tickets (U.S. Census Bureau, 2008). Our sample also confirmed these results. The data is shown in Table 2. For testing the consistence of sample percentage and population percentage, we conducted a nonparametric test of homogeneity of proportions. The result shows there are no significant differences between sample percentage and population percentage ($\chi^2 = 13.168$, $p = 0.282$). Therefore, this study has adequately achieved the representative of American customer purchase behavior on the Internet.

Insert Table 2 about here

3.4 Reliability and validity test

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In order to verify research constructs of this study, we conducted exploratory factor analysis to refine the measurement (Lin, Weng, and Hsieh, 2003). First, we applied the principle-axis factor analysis method. To make the extracted factors more interpretable, we performed the varimax rotation method and used the eigenvalue criterion ($\lambda > 1$) to determine the number of factors. Thus, four factors were selected. To further improve the distinction between factors, we removed the items that had factor loadings greater than 0.4 on two or more factors from the measurement. After these procedures were performed, we removed five items (including SC1 of switching costs, PL3 of preference loyalty, DR2 of dissatisfaction response, and PR1, PR2 of perceived risks), which resulted in a set of eleven items across the four factors; the cumulative variance is 88.362%; the standardized factor loading of each item is shown in Table 3.

For the measurement of survey scale reliability, scholars were used to take Cronbach's α value. Nunnally (1978) indicates that the reliability coefficient above 0.7 means high reliability. Robert and Wortzel (1979) further define Cronbach's α value between 0.70 and 0.98 can be seen as high reliability. According to Table 3, we can find the Cronbach's α of this study: switching costs is 0.82, preference loyalty is 0.88, dissatisfaction response is 0.71, and perceived risks is 0.81. Since each construct score higher than 0.7, this study carries good reliability.

Convergent validity can be examined by composite reliability (CR), factor loadings, and average variance extracted (AVE). Scholars usually use composite reliability greater than 0.8, factor loading greater than 0.7, and average variance extracted at least 0.5 as good criteria (Fornell and Larcker, 1981). As shown in Table 3, the composite reliability of SC and DR are slightly less than 0.8, and the factor loading SC3 and DR1 are slightly less than 0.7, but the other variables exceed the criteria. Thus, this study possesses adequate convergent validity.

For the test of discriminate validity, scholars suggest that use of related coefficients of the square root of each construct's average variance extracted is greater than other variables' coefficients (Fornell and Larcker, 1981). As shown in Table 4, the AVE square root of each research variable is larger than the related coefficients of the variable and other variables. Hence, this study has adequate discriminate validity.

Insert Table 3 about here

Insert Table 4 about here

4. Results and Discussion

4.1 *The influence of customer loyalty on switching cost*

This study was conducted using linear regression to examine the relationship between switching costs and customer loyalty. Switching cost is an independent variable, whereas customer loyalty is a dependent variable. The empirical evidence (see Table 5) shows that switching costs are positively associated with preference loyalty ($\beta = 0.239$, $p = 0.000$). Hence, H1 is supported. Moreover, switching costs are negatively associated with dissatisfaction response ($\beta = -0.194$, $p = 0.000$); thus, H2 is also supported.

Therefore, the higher the switching costs, the higher the preference loyalty; the higher the switching costs, the lower the dissatisfaction response. In other words, if customers have high switching costs toward the website, they would have high customer loyalty toward it.

Insert Table 5 about here

4.2 *The moderating role of perceived risks*

With respect to the moderating effect of perceived risks, this study examined it

by multiple regression analysis. Three independent variables include switching costs, perceived risks, and the interaction (switching costs \times perceived risks), while one dependent variable is customer loyalty. The multiple regression equation is shown in equation (1):

$$Y_i = \beta_0 + \beta_1 \times X_1 + \beta_2 \times X_2 + \beta_{3i} \times (X_1 \times X_2) + \varepsilon \quad (1)$$

Y_i = preference loyalty, dissatisfaction response ($i = 1, 2$)

X_1 = switching costs

X_2 = perceived risks (high = 1, low = 0)

ε = error

The moderating effect was examined by the standardized β_{3i} of the interaction between variables. Otherwise, this study uses the median scores of perceived risks to discriminate two groups: high perceived risks and low perceived risks.

As the results are shown in Table 6, the interaction of switching costs and perceived risks significantly influences preference loyalty ($\beta = -1.246$, $p = 0.000$).

Meanwhile, the interaction of switching costs and perceived risks also significantly influences dissatisfaction response ($\beta = -0.842$, $p = 0.000$); thus H3 is supported. In the further analysis (see Table 7), we find switching costs are positively associated with

preference loyalty ($\beta = 0.887$, $p = 0.000$) for low perceived risk customers, but switching costs are negatively associated with dissatisfaction response ($\beta = -0.258$, $p = 0.000$); thus H3a is supported. However, for high perceived risk customers, switching costs are positively associated with preference loyalty, but not significantly ($\beta = 0.103$, $p = 0.127$). Moreover, switching costs are positively associated with dissatisfaction response ($\beta = 0.858$, $p = 0.000$) for high perceived risk customers; thus H3b is partly supported. Hence, high perceived risk customers are obviously different from low perceived risk customers because the relationship of switching costs and preference loyalty is decreased (β value is from 0.887 down to 0.103), but the relationship of switching costs and dissatisfaction response is reversely increased (β value is from -0.258 up to 0.858). This result shows customers with high perceived risks will affect the relationship of switching costs and customer loyalty. That is, for low perceived risk customers, switching costs are positively associated with preference loyalty, and switching costs are negatively associated with dissatisfaction response. However, for customers with high perceived risks, the relationship of switching costs and preference loyalty would be weak and the relationship of switching costs and dissatisfaction response would be revised to be positive. Therefore, if customers have high perceived risks to the website, they will have a high probability of switching to other websites.

Insert Table 6 about here

Insert Table 7 about here

4.3 Discussion

This study has two important findings. First, the sources of switching costs in e-commerce are different from in telecommunication sectors. The former focuses more on economic costs and psychological factors, not monetary or learning factors. Hence, the websites must have more psychological efforts to increase customer's switching costs. For example, customized service will be a powerful tool to attract new customers and keep current customers on the website.

Second, the relationship of switching costs and customer loyalty can be affected by perceived risks, which is the moderating effect. It means the relationship of switching costs and customer loyalty is not invariable. When customer perceived risks are high in e-commerce, the relationship of switching costs and customer loyalty will be varied. Although the evidence of this study reveals switching costs are not significantly associated with preference loyalty for high perceived risk customers,

maybe perceived risks intervened the relationship of switching costs and preference loyalty are not sufficient. However, customers will release the relationship of switching costs and preference loyalty when they have high perceived risks (the relation is from positive to not significant). Thus, we can get the proposition, “switching costs to customer loyalty would be varied by perceived risks”. This concept can be generalized and applied to other service sectors. For example, switching costs in the telecommunication sector will be more important than perceived risks for customers. The reason is the operators in telecommunication would like to lock in their customers via promotional programs, such as special discounts and by two-year contracts. The other reason is that perceived risks are weak for customers in telecommunication since operators are well known to the customers (e.g. AT&T, Verizon) and the fare rates of cell phone are available for every customer. Thus, we can boldly assume that switching costs can affect perceived risks to customer retention in the telecommunication sector.

5. Conclusions and suggestions for further research

The primary purpose of this study is to explore the influence of perceived risks, and how to affect the relationship of switching costs and customer loyalty in e-commerce. Past studies are more focused on the relationship of switching costs and

customer loyalty, but this study tries to understand how perceived risks affect this relation in e-commerce. This study, through social networks, invited American customers in northeastern United States as research samples. The valid samples totaled 425.

The findings of this study state that switching costs are positively associated with customer loyalty. This evidence shows the higher the switching costs in e-commerce, the higher the customer loyalty. Therefore, if customers are loyal to the website, they would repatronize this website and would recommend it to other people. Besides, customers with high switching costs will have a low willingness to complain to the website. This part agrees with the results of previous studies (de Ruyter, et al., 1998; Söderlund, 2006). For example, the passengers may have few choices between airways or routes to their destinations. Even though they may be dissatisfied with certain airways, they still use them because no other airways go there. In e-commerce, if customers have higher switching costs to the website, they will reluctantly switch to other websites because there are more psychological impacts.

In addition, this study finds that perceived risks are more critical for customers in e-commerce. Customers with high perceived risks to the website would affect the relationship of switching costs and customer loyalty. High perceived risks can not only destroy customer's purchase intention toward the websites, but they will also

increase the possibility of switching to other websites. As a result, we can explain why customers may leave the websites, because unsatisfactory experiences, such as inappropriate employee responses to service failures, pricing problems, core service failures, service encounter failures, lack of convenience, or ethical problems (N'Goala, 2007), can reduce their trust, and then low trust or distrust may increase their perceived risks toward the websites. Hence, it is the most important topic that the website managers have to adequately reduce customer's perceived risks toward the website.

Along with these important implications, this study contains some limitations and suggestions. First, student samples (60.7%) override all other group samples. The irregular sampling may limit generalization of the findings in this study. If respondents who are distributed equally in occupations are examined, perhaps there will be different findings. In fact, different occupations of consumers would have different levels of perceived risks.

Second, this study finds that perceived risks can affect the relationship of switching costs and customer loyalty. Perceived risks will have the influences to validate switching costs to customer loyalty in e-commerce. In addition, we also infer switching costs will affect perceived risks to customer loyalty in the telecommunication sector. Hence, we can further extend this concept: *perceived risks*

and switching costs can influence each other, depending on the customer's acceptance.

Thus, subsequent research can explore what contents of the customer's acceptance is in different industry sectors.

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Table 1: The variable items of this study

Construct	Variable items
1.Switching cost (SC)	<p>SC1. Overall, it would cost me a lot of time and energy to find an alternative website.</p> <p>SC2. I would lose a lot of information about my transaction history if I change.</p> <p>SC3. I cannot make sure the new website can provide better service than the old one.</p>
<hr/>	
2.Customer loyalty	
2.1Preference loyalty (PL)	<p>PL1. I will recommend this website to someone who seeks my advice.</p> <p>PL2. I will encourage friends and relatives to do business with this website.</p> <p>PL3. I will do more business with this website in the next few years.</p> <p>PL4. I will give positive comments about this website to other people.</p> <p>PL5. I will consider this to be my first choice to buy its services on this website.</p>
2.2Dissatisfaction response (DR)	<p>DR1. I will complain to other consumers if I experience a problem with its service.</p> <p>DR2. I will complain to external agencies, such as consumer organizations, if I experience a problem with its service.</p> <p>DR3. I will complain to employees if I experience a problem with its service.</p>
3.Perceived risk (PR)	<p>PR1. Credit card information used for online purchase is secure. (R)</p> <p>PR2. Personal information provided for online purchases is confidential. (R)</p> <p>PR3. Products purchased online are delivered undamaged. (R)</p> <p>PR4. Products returns are easy for online purchases. (R)</p> <p>PR5. Contacting customer service is easy for online purchases. (R)</p>

Note: (R) is a reversed item.

Table 2: Types of products purchased by American consumers through the Internet

Category	Frequency (study sample)	Percentage (study sample)	Percentage (2006 U.S. sample)
1.Computer hardware and software	158	37.2	38.3
2.Consumer electronics	139	32.7	27.4
3.Books, music and videos	104	24.5	14.6
4.Tickets	128	30.1	17.0
5.Consumer health	24	5.6	3.0
6.Apparel, accessories, footwear and jewelry	62	14.6	4.7
7.Grocery and pet food	0	0.0	0.8
8.Toys and video games	38	8.9	10.0
9.Sporting goods	29	6.8	8.7
10.Flowers and specialty gifts	36	8.5	6.4
11.Home	4	0.9	2.6
12.Office products	25	5.9	10.2

Table 3: Model of research construct

Construct and observable variable	Mean (Standard deviation)	Standardized factor loading	CR	AVE	Cronbach's α
SC			0.68**	0.53	0.82
SC2	5.14 (1.15)	0.90			
SC3	5.40 (1.21)	0.50*			
PL			0.91	0.71	0.88
PL1	5.17 (1.17)	0.86			
PL2	4.79 (1.12)	0.91			
PL4	5.03 (1.16)	0.82			
PL5	5.27 (0.93)	0.78			
DR			0.79**	0.66	0.71
DR1	4.59 (0.72)	0.67*			
DR3	5.17 (0.94)	0.93			
PR			0.88	0.70	0.81
PR3	3.22 (0.91)	0.89			
PR4	3.64 (1.22)	0.72			
PR5	3.45 (1.20)	0.90			

Note: * Standardized factor loading < 0.7; ** CR < 0.8

Table 4: Correlation between research constructs

	SC	PL	DR	PR
SC	.73			
PL	.24**	.84		
DR	.19**	.21**	.81	
PR	-.64**	-.12*	.11*	.84

Note: 1. Diagonal elements in boldface represent the square root of AVE.

2. ** $p < 0.01$; * $P < 0.05$

Table 5: Switching cost affects customer loyalty

	β -value	t-value	p-value
Dependent variable is preference loyalty			
Constant		22.693	0.000
Switching cost	0.239*	5.072	0.000
R ²	0.057		
Adjusted R ²	0.055		
F	25.725(p=0.000)		
Dependent variable is dissatisfaction response			
Constant		28.283	0.000
Switching cost	-0.194*	-4.066	0.000
R ²	0.038		
Adjusted R ²	0.035		
F	16.532(p=0.000)		

Note: * P<0.05

Table 6: Test of interaction

	β -value	t-value	p-value
Dependent variable is preference loyalty			
Constant		11.150	0.000
Switching costs	0.455*	3.531	0.000
Perceived risks	-1.105*	-5.712	0.000
Switching costs \times Perceived risks	-1.246*	-8.371	0.000
R ²	0.296		
Adjusted R ²	0.291		
F	58.877(p=0.000)		
Dependent variable is dissatisfaction response			
Constant		10.899	0.000
Switching costs	0.217	1.565	0.118
Perceived risks	-0.655*	-3.148	0.002
Switching costs \times Perceived risks	-0.842*	-5.260	0.000
R ²	0.185		
Adjusted R ²	0.179		
F	31.783(p=0.000)		

Note: * P<0.05

Table 7: Switching costs affect customer loyalty for different perceived risks

	β -value	t-value	p-value
Low Perceived risks (N=212)			
Switching costs -> Preference loyalty	0.887*	27.855	0.000
Switching costs -> Dissatisfaction response	-0.258*	-4.378	0.000
High Perceived risks (N=213)			
Switching costs -> Preference loyalty	0.103	1.170	0.127
Switching costs -> Dissatisfaction response	0.858*	24.302	0.000

Note: * P<0.05