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Managing perceived risk for customer retention in e-commerce

Customer retention in e-commerce

The role of switching costs

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Abstract

Purpose – This paper aims to explore how perceived risk affects customer loyalty in e-commerce and how switching costs mediate in the relationship between perceived risk and customer loyalty.

Design/methodology/approach – In this paper, structural equation modeling was conducted, and data on Internet shopping habits of 382 consumers in Taiwan were examined.

Findings – The findings of this study revealed that lowering perceived risks can increase switching costs, which leads to customer loyalty with the service provider in e-commerce.

Research limitations/implications – A sample bias may exist because the sampling was conducted through an online survey in a specific Web site. This study affirmed the theoretical framework regarding the mediation effect of switching costs on perceived risk and customer-loyalty relationships.

Practical implications – To avoid the single effect of reducing perceived risk on customer loyalty, practitioners should be difficult for competitors to imitate. This can increase the barriers to competition, further lock in the customer and can prevent the switch to other service providers.

Originality/value – The findings provide a new feasible approach to customer retention: a business can reduce customers' perceived risk to increase switching costs against the competition for customer retention in e-commerce.

Keywords Consumer marketing, Retention, Information management, Risk

Paper type Research paper

1. Introduction

Currently, perceived risk (PR) has been understood as an influential factor on a person's willingness to make a choice, including adopting a new technology such as online shopping (Jasper and Ouellette, 1994; Javenpaa and Tractinsky, 1999). In general, people perceive high risks in online trading (Schoenbachler and Gordon, 2002). The concern may in fact be increasing, as Internet fraud is perceived to be wide-spreading (Keeney, 1999; Smith and Rupp, 2003). Therefore, the customer's heightened concerns for risk, or the PR, tend to serve as a new significant, generic factor affecting the customer's choice of providers on the Internet (Udo, 2001). If e-commerce is inevitably and acutely associated with heightened concerns for risk, lowering PR can be elevated into a business strategy for enhancing customer retention (Cunningham *et al.*, 2005; Morgan and Hunt, 1994).



Switching costs (SCs) that influence customer loyalty (CL) are a vital concept for managing customer retention. This concept has been examined in the customer relationship literature (Caruana, 2004; Aydin and özer, 2005; Hu and Hwang, 2006). Practically, businesses have a long history of using SCs as a customer-retention strategy (Roos and Gustafsson, 2007; Wieringa and Verhoef, 2007). However, the advent of the Internet has complicated this proven practice. While the Internet's hallmark nature, its pervasive connections between persons and businesses has generally reduced the transaction costs of connecting customers to service providers to promote business, it has also lowered the general thresholds of customers switching from one provider to another. The flip side to this ease of switching to doing business online is that it also tends to remove personal contacts in the process, thus acutely forcing the issue of PR on the customer-provider relationships. Therefore, customers' perceived transaction risks considerably affect the business over the Internet (Kiely, 1997; Lee and Clark, 1996). In other words, customers may concern heavily PR for the first contact of online trading. Therefore, the reduction of PR is the force working at the customer acquisition phase for the service provider. While the experience between the customers and the providers increases, retentive customers are less sensitive to the losses of PR because they tend to weigh prior satisfaction levels heavily (Bolton, 1998). However, Tam (2012) argued that a satisfied customer may not be loyal to the service provider if he or she perceives the risk in acquiring a service from alternative providers is low. Thus, SCs can lock in customers against the competition in that customers may consider relatively high PRs if switching to other providers. Therefore, in addition to reducing PR to acquire customers, service providers also must use SCs to retain customers against the switching intention. Previous studies have not addressed how these forces affect CL in e-commerce (Cooper *et al.*, 1996; Kienan, 2000).

To address this gap in the literature, the behaviors of a selected group of 382 savvy Internet shoppers in Taiwan were studied to understand the relationship of PR, SCs and CL toward a few common, popular e-commerce sites. This study seeks to establish the proposed model to explain the causal relationship among PR, SCs and CL in e-commerce. It, thereby, contributes a few significant new results to the field: extending the previous understanding of how PR and SCs affects CL to the realm of e-commerce and formulating the proposed model of managing PR for customer retention in the context of e-commerce.

2. Literature review and hypotheses development

2.1 *Perceived risk to customer loyalty*

PR is a critical research issue in e-commerce (Cases, 2002). In computer fraud and security research, scholars have found that online consumers are typically exposed to security threats such as malware, denial of service, defacement, data streaming, phishing and poorly configured systems (Furnell, 2004). For example, phishing is one of the emerging serious threats against personal data security. It also is the one that most people are more likely to have personal encounters with (Furnell, 2007). Phishing is the attempt to acquire sensitive information such as usernames, passwords and credit card details (and sometimes, indirectly, money) by masquerading as a trustworthy entity in an electronic communication (Ramzan, 2010). Thus, phishing attacks are often performed by sending out emails that seem to originate from a trusted party (Pamunuwa *et al.*, 2007). Approximately, more than 500 million phishing emails are

received each day (Sadeh, 2012). Although the Anti-Phishing Working Group indicated that there was a decline in phishing attacks, the phishing threat has certainly not diminished yet (Furnell, 2013). Consequently, when people work on the Internet, their personal data and security will be threatened. Thus, PR has been widely used to predict the behavior of purchasing in e-commerce (Chang and Chen, 2008; Lu *et al.*, 2005). As consumers are more often motivated to avoid mistakes than to maximize utility in purchasing, it is believed that PR is a critical antecedent influencing consumer behavior (Mitchell, 1999). Kim *et al.* (2008) argued that PR is a belief regarding the potential uncertain negative outcomes from the transaction. However, the definition of PR may be varied by different service sectors. For example, PR in traditional retailers is primarily regarded as fraud and product quality (Wu and Wang, 2005). In online retailers, PR is generally measured as a multidimensional construct which comprised financial, performance, social, psychological, physical and time risks (Boksberger *et al.*, 2007; Chang, 2008; Kaplan *et al.*, 1974). Financial risk is the potential loss of money by purchasing the product; thus, the security of payment is an important determinant of the purchase in e-commerce (Cheng *et al.*, 2006). Performance risk is the potential loss occurred by the product failure to perform as expected; thus, the disconfirmation of the product quality compared with the expectation will lower the purchase intention. Social risk is the potential loss of disapproval by family or friends from the purchase; thus, consumers' purchase behavior will be referred by the opinions of family or friends. Psychological risk is the potential loss of self-image or self-concept resulting from the purchase; thus, consumers may have the feeling of psychological unease when purchased in e-commerce. Physical risk is the potential loss of personal safety resulting from the purchase; thus, consumers may feel unsafe in the purchase environment within e-commerce. Time risk is the potential loss of time and effort associated with purchasing the product; thus, consumers may spend more time and effort for the purchase. In short, PR represents an aggregated impact of these various factors, which also involves some security concerns in the context of e-commerce such as financial, psychological and physical risk. In other words, PR is a biased assessment of a risk situation, highly depending on the individual's psychological and situational characteristics (Cho and Lee, 2006). Additionally, PRs are varied much in comparison to purchasing a book or article of clothing online (Kim and Kim, 2004). As consumers may have different perceptions of the risk to products, services and retailers in online purchases, PR in this study will focus on the risk perceptions of online shopping regarding consumers purchasing products from an online retailer.

PR is negatively associated with CL in e-commerce (Lim, 2003; Jasper and Ouellette, 1994). Parasuraman (2000) found that high PR, such as insecurity, has a negative impact on consumers' technology adoption in e-commerce. Lim (2003) also indicated that consumers will reject deals with distrustful providers because of the fear of misusing personal data, such as credit card or telephone number. Therefore, this study brings forth the first hypothesis (*H1*):

H1. PR is negatively associated with CL in e-commerce. That is, reducing PR can increase CL to the service provider.

2.2 Perceived risk to switching costs

It is prolific to recognize two related but different perspectives of PR: the risk perceived of engaging with an online provider, and the PRs of consumers leaving for the providers'

competitors *vis-à-vis* the providers themselves (Büttner and Göritz, 2008). The second perspective is similar to the concept of SCs, but the first is not. There are no SCs for leaving a business until the customer has passed the threshold of PR to engage the provider. Therefore, conceptually, PR is not the same as SCs, and it can be independently defined, set and managed in practice. Furthermore, PR may be associated with every transaction, whereas SCs tend to be a one-time occurrence (Porter, 1980).

In addition, SCs and PR are highly related in the life cycle of purchase behavior (Gremler, 1995; Stone and Gronhaug, 1993). When customers first come to a new online provider, the provider supposes that SCs are very low but that PR is relatively high. However, the situation will reverse itself once customers accept the service. That is, prior experiences can lower PR to the service provider (Cases, 2002). Therefore, when customers cannot evaluate whether the services provided by others are better than the original provider, prior experiences may reduce PR of the original provider, which, in turn, results in high SCs to the customers. That is, if nothing influences, customers may have a higher priority of staying with the original provider because they have a relatively high PR to other providers. Therefore, this study brings forth the second hypothesis (H2):

H2. PR is negatively associated with SCs in e-commerce. That is, reducing PR can increase SCs to the service provider.

2.3 Switching costs to customer loyalty

The topic of SCs has been studied in the fields of economics, marketing and business strategy (Bateson and Hoffman, 1999; Burnham *et al.*, 2003; Porter, 1980). Its importance to service has also been repeatedly affirmed (Jones *et al.*, 2007). Both empirical and theoretical evidence have shown that SCs are an important customer-retention strategy to the online environment (Shapiro and Varian, 1999) and the telecommunication industry (Aydin and özer, 2005; Caruana, 2004). To be sure, customers are tied by SCs in e-commerce (Park and Kim, 2003), and some of the new practices on the Internet may be much more powerful than any conventional ways that the traditional field has witnessed (Liu *et al.*, 2010). For example, offering free email accounts is such a case in point. A long-time user of a particular email account tends to have accumulated a large amount of contacts associated with that account. Therefore, switching to another email provider implies that special efforts will be necessary to notify or convert these contacts, which could be a prohibitive cost to the user. In a similar way, customers are reluctant to spend more time and effort to try other service providers for online trading (Kolsaker *et al.*, 2004). As noted previously, customers may have search costs and suffer psychological problems associated with switching from one provider to another (Roos and Gustafsson, 2007; Wieringa and Verhoef, 2007).

The relationship between SCs and CL has been examined by prior studies, especially in the telecommunication sector (Aydin and özer, 2005; Caruana, 2004; Chen and Hitt, 2002; Roos and Gustafsson, 2007). The reason is the strategy of SCs induces the cell phone in being tied up with a contract. However, SCs in e-commerce result in the risk of other alternatives (Wieringa and Verhoef, 2007). Customers cannot expect that the alternatives provide the services as well as the original provider. Therefore, the author expects that SCs positively affect CL in e-commerce. This study brings forth the third hypothesis (H3):

H3. SCs are positively associated with CL in e-commerce. That is, increasing SCs can enhance CL to the service provider.

2.4 The mediation effect of switching costs

As discussed previously, the author recognized that both PR and SCs are related to customers' perception, and customers will naturally use both to make a purchase decision (Cases, 2002; Lin and Wang, 2006). This recognition leads to the argument that customers may be employed by PR and SCs to commit their loyalty to the provider in e-commerce (Javenpaa and Tractinsky, 1999). In other words, the author expects that reducing PR can increase switching barriers in selecting new providers, which, in turn, increase the loyalty to the origin. SCs mediate the relationship between PR and CL in e-commerce. Therefore, this study brings forth the fourth hypothesis (*H4*):

H4. SCs mediate the relationship between PR and CL in e-commerce. That is, reducing PR can increase SCs against the competition, which, in turn, enhances CL to the service provider.

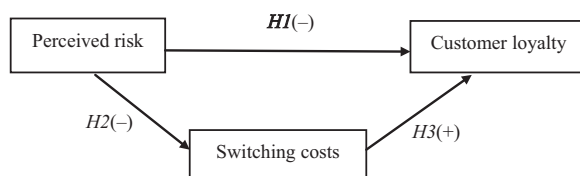
Figure 1 depicts the conceptual model of this study in terms of the literature established. Meanwhile, PR including financial, performance, social, psychological, physical and time risks is the perception of risk to the service provider, which also involves some security concerns in the context of e-commerce. SCs are the opportunity cost of switching to other service providers. CL is the preference loyalty to the service provider.

3. Research methods

3.1 Subjects

This study conducted an online survey to investigate online consumers in Taiwan. A self-administered questionnaire was used. At the beginning of the questionnaire, it was declared that the respondents should have online shopping experience and listed one online retailer of purchase over the past three months. The reason is that the respondents should have a clear memory of the purchase behavior (Wu, 2013). Data were collected from telnet://www.wretch.cc/, a popular online survey Web site in Taiwan. This method of gathering data is consistent with previous studies which investigated online users in Taiwan (Lu and Hsiao, 2007). To increase the sample return rate, the study offered gifts to the respondents for participating in the survey.

The data were collected for one month. A total of 396 subjects responded, of which 14 were deleted due to sub-standard data, such as missing data. Thus, there were 382 valid respondents in total. The sample, as shown in Table I, includes 52.9 per cent females and 47.1 per cent males. The large age groups were 21-30 years (34.9 per cent) and 31-40 years (35.5 per cent), and the large education group was undergraduate (49.7 per cent). Most



H4: Mediation effect of switching costs

Figure 1.
Conceptual model of the study

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Table I.
Subjects'
demography and
usage behavior

Measure	Item	Frequency	(%)
Sex	Male	180	47.1
	Female	202	52.9
Age	Below 20 years	42	10.9
	21-30	133	34.9
	31-40	136	35.5
	41-50	37	9.6
	51-60	34	9.1
Education	Senior high school	97	25.4
	Undergraduate	190	49.7
	Graduate	95	24.9
Online shopping experience (months)	Less than 12	32	8.4
	13-24	57	14.9
	25-36	86	22.5
	37-48	94	24.6
	More than 48	113	29.6
Monthly expenditures on the Internet (NT dollars)	Less than 100	43	11.3
	100-2,000	285	74.6
	2,000-4,000	33	8.6
	More than 4,000	21	5.5

respondents had over two years of experience of online shopping (76.7 per cent), with their monthly expenditures on the Internet mostly between NT \$100-2,000 (74.6 per cent).

As an indicator of their representativeness, all respondents were asked a question regarding the most often purchased commodities on the Internet over the past year (multiple choices). Table II shows that the sample is unbiased toward the representative population from the non-parametric test of homogeneity of proportions ($\chi^2 = 6.0, p = 0.199$).

3.2 Measuring instruments

The design of the instruments was adopted from the previous results in the literature with appropriate modifications for e-commerce (e.g. terminologies). First, the scale of PR was revised from Chen and He (2003), which includes six items. The scale of SCs was revised from Sharma and Patterson (2000), which includes five items. The scale of CL was revised from de Ruyter *et al.* (1998). The original scale includes three dimensions, of which price indifference and dissatisfaction response dimensions were removed because of their being inappropriate for the study, and five items regarding the preference loyalty dimension remained. All of the items were measured on a seven-point Likert-type scale, where possible answers ranged from strongly disagree (1) to strongly agree (7).

Table II.
Types of products
purchased by
Taiwan consumers
through the internet

Category	Sample of this study		Taiwan population (RDEC, 2008)	
	Frequency	(%)	Frequency	(%)
Apparel and accessories	233	61.0		60.6
Books, music and videos	167	43.7		49.7
Tickets	140	36.6		48.5

To examine the preliminary instrument for face validity, this study invited three e-commerce experts who are professors of a university to review the survey. They suggested that the third item of SCs be revised as “If I switch to the other retailer, the service offered by the new retailer might not work as well as expected”, and the fourth item of SCs be revised as “I would feel frustrated if I change”. This result ensures the instrument fitting the study. Overall, the final items of the instrument are shown in [Table III](#).

3.3 Reliability and validity test

Exploratory factor analysis was conducted to refine the measurement, and principle components with varimax rotation method were applied ([Lin et al., 2003](#)). The eigenvalue criterion ($\lambda > 1$) determined the number of factors. Three factors were selected. To improve the distinction between the factors, I removed items that had factor loadings less than 0.4 or greater than 0.4 on two or more factors from the measurement ([Hair et al., 1998](#)). After these procedures were performed, I removed three items (including PR3 of PR, SC5 of SCs and CL5 of CL), which resulted in a set of 13 items across the three factors. The cumulative variance was 85.25 per cent, and the standardized factor loading (SFL) of each item is shown in [Table IV](#).

Construct	Variables
Perceived risk (PR)	PR1. My expected monetary loss resulting from purchasing products from the online retailer is high
	PR2. My expected failure of product performance if I buy products from the online retailer is high
	PR3. If I buy products from the online retailer, I think I will experience high difficulty in gaining social reorganization (from family, friends, etc.)
	PR4. I will feel uneasy psychologically if I buy products from the online retailer
	PR5. I do not think it is safe to buy products from the online retailer
	PR6. I feel uncertainty as to whether the online retailer is time-efficient in terms of dealing with the order and delivery
Switching costs (SCs)	SC1. Overall, it would cost me a lot of time and energy to find an alternative retailer
	SC2. I would lose a lot of information about my transaction history if I change
	SC3. If I switch to the other retailer, the service offered by the new retailer might not work as well as expected
	SC4. I would feel frustrated if I change
	SC5. Considering everything, the cost to stop doing business with the online retailer and start up with a new retailer would be high
Customer loyalty (CL)	CL1. I will recommend the online retailer to someone who seeks my advice
	CL2. I will encourage friends and relatives to do business with the online retailer
	CL3. I will do more business with the online retailer in the next few years
	CL4. I will give positive comments about the online retailer to other people
	CL5. I will consider this to be my first choice to buy its services on the online retailer

Table III.
The instrument design

ICS 23,2	Items	PR	SC	CL
		PR1	0.82	0.07
	PR2	0.80	0.27	0.20
	PR3	0.32	0.16	0.11
	PR4	0.86	-0.02	-0.06
152	PR5	0.85	0.39	0.26
	PR6	0.71	0.05	0.41
	SC1	0.01	0.86	0.03
	SC2	0.08	0.76	0.09
	SC3	0.27	0.81	0.20
	SC4	0.07	0.60	0.03
	SC5	0.01	0.35	0.17
	CL1	0.02	0.10	0.85
	CL2	0.24	-0.15	0.91
	CL3	0.05	0.13	0.82
	CL4	0.14	0.04	0.77
	CL5	0.31	0.64	0.65
	Eigen values	4.87	2.73	1.51
	Percent of total variation	50.57	22.45	12.23
	Cumulative percent of total variation	50.57	73.02	85.25

Table IV.

Factor analysis with cross-loadings

Notes: Rotation: varimax method, factor loadings above 0.5 are highlighted in bold and italic; valid $N = 382$

Confirmation factor analysis was performed for scale reliability and validity assessment (Anderson and Gerbing, 1988). Scale reliability was measured by Cronbach's alpha (α). The Cronbach's α in Table V indicates the reliability of the measurement constructs such as: PR 0.87, SCs 0.81 and CL 0.83. These numbers satisfy the general requirements in the field (Nunnally, 1978), suggest a reliability coefficient above 0.7 and Robert and Wortzel (1979) state the number should be between 0.70 and 0.98. Therefore, this study carries good reliability.

Convergent validity can be measured by composite reliability (CR), SFLs and average variance extracted (AVE) in which they should be greater than 0.8, 0.7 and 0.5, respectively (Fornell and Larcker, 1981). As shown in Table V, PR and CL constructs both surpassed the criteria. However, the SCs construct was partially satisfied, excepting that SFL of SC4 is slightly less than 0.7. It is acceptable for the tolerant level with the value greater than 0.5 (Chiao *et al.*, 2008). Thus, this study possesses adequate convergent validity.

In the test of discriminate validity, Table VI shows that the AVE square root of each research variable is larger than the related coefficients of the variable and other variables. This is a clear case of positive proof (Fornell and Larcker, 1981). Thus, this study has adequate discriminate validity.

4. Data analysis and results

4.1 The test of coefficient paths

To examine the structured model, a structured equation modeling (SEM) test was performed using AMOS 20.0 based on multiple criteria: the chi-square (χ^2)/df ratio, the

Construct and observable variable	Mean (SD)	SFL	CR	AVE	α
PR			0.90	0.66	0.87
PR1	4.19 (1.10)	0.82			
PR2	4.02 (1.23)	0.80			
PR4	3.65 (1.42)	0.86			
PR5	3.41 (0.89)	0.85			
PR6	3.73 (1.32)	0.71			
SCs			0.85	0.58	0.81
SC1	5.21 (1.08)	0.86			
SC2	5.01 (1.24)	0.76			
SC3	5.13 (1.14)	0.81			
SC4	5.40 (1.21)	0.60*			
CL			0.90	0.70	0.83
CL1	5.17 (1.17)	0.85			
CL2	4.78 (1.12)	0.91			
CL3	5.03 (1.16)	0.82			
CL4	5.26 (0.92)	0.77			

Table V.
Model of research
construct

Note: *SFL < 0.7

Construct	PR	SC	CL
PR	0.81		
SC	-0.55**	0.76	
CL	-0.06	0.46**	0.84

Table VI.
Correlation between
constructs

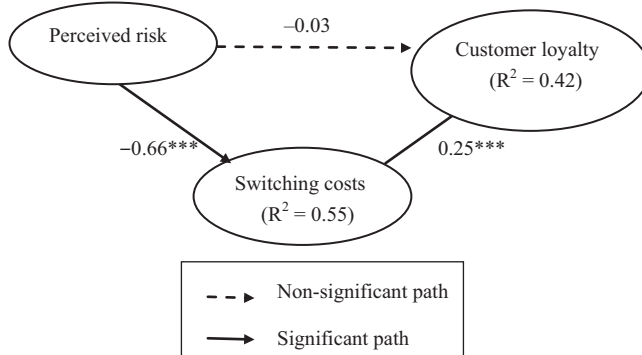
Notes: Diagonal elements in boldface represent the square root of AVE; ** $p < 0.01$

root mean square error of approximation (RMSEA), the goodness-of-fit index (GFI), the adjust goodness-of-fit index (AGFI) and the comparative fit index (CFI) (Byrne, 2001). Figure 2 presents the substantiation of the conceptual model resulting from the study. The results show that all indices are satisfied: $\chi^2 = 195.78$; $df = 78$; $\chi^2/df = 2.51$; $RMSEA = 0.05$; $GFI = 0.91$; $AGFI = 0.86$; and $CFI = 0.92$. Therefore, the structured model fit of the study was good. Results reveal that PR explains 55 and 42 per cent of the variance in SCs and CL, respectively. Moreover, the evidence reveals that the relationship between PR and CL is not significant (estimate = -0.03 , $SE = 0.02$, $CR = -0.95$, $p = 0.14$), but PR has a significantly negative effect on SCs (estimate = -0.66 , $SE = 0.05$, $CR = -13.45$, $p < 0.001$) and SCs have a significantly positive effect on CL (estimate = 0.25 , $SE = 0.04$, $CR = 5.37$, $p < 0.001$). Therefore, $H1$ is rejected, but $H2$ and $H3$ are supported.

4.2 The test of the mediating effect of switching costs

In addition, the mediating effect was examined by Baron and Kenny's (1986) approach, which notes that causal steps test the intervening variable effect (MacKinnon *et al.*, 2002). In this procedure, the mediating effect is examined by the relationship between direct and indirect effects. If direct and indirect effects are both significant, partial

Figure 2.
The structural model
of this study



Note: *** $p < 0.001$

mediation is sustained. However, if indirect effects are significant, direct effects are not significant, and perfect mediation will hold. The results reveal that SCs fully mediates the effect of PR on CL because the causal relationship of PR, SCs and CL is significant, but the direct relationship of PR and CL is not significant (Mallat *et al.*, 2009). Moreover, the author also tests the mediating effect by Sobel's (1982) approach, which utilizes a product of coefficients test for intervening variable effect (MacKinnon *et al.*, 2002). The calculation is $z \text{ value} = a * b / \sqrt{a^2 SE^2 b + b^2 SE^2 a}$, where a and b are unstandardized coefficients of indirect paths, $SE^2 a$, and $SE^2 b$, are standard errors. The Sobel z value is significant for the mediating effect of SCs on CL (Sobel $z = 6.427, p = 0.000$). This result implies SCs acts as a vital mediator for improving the relationship between PR and CL. Therefore, $H4$ is supported.

5. Conclusion and suggestion

5.1 Research and practice implications

The study has yielded several important findings. First, this study found that the relationship between PR and CL is not directly significant in e-commerce. It means that PR may exist in the online transaction, but it does not significantly affect CL. The possible reason is that consumers had many experiences in e-commerce during the past decades and many people had the habit of purchasing on the Internet. Thus, PR may not be the determinant of influencing purchase intention. That is, consumers with low PR are not essential to have higher purchase intentions in e-commerce. This result is in line with the study of Lu *et al.* (2005), which indicated that PR does not directly affect intentions to use online anti-virus applications. Second, this study also found that SCs significantly mediate the relationship between PR and CL in e-commerce. Thus, the key point of managing CL is to reduce PR and increase SCs to the service provider. In fact, maybe consumers have high PR for buying on the Internet. PR easily makes consumers feel tension or anxiety because of the uncertainty of the transaction environment (Gutiérrez *et al.*, 2010). Thus, managing PR is critical for the consumers to purchase in e-commerce. For acquiring customers, the service providers have to reduce consumers' PR for increasing purchase intention. For example, several strategies to reduce PR were suggested for consumers, such as buying known brands or patronizing known stores,

collecting information about the product, looking for guarantees and evaluating products with free samples (Bauer, 1960; Nepomuceno *et al.*, 2012). Therefore, store brand, product information, service guarantees and promotions will be helpful for consumers to reduce PR to the service provider. Moreover, security threats resulting from phishing attacks cannot be overlooked. The service providers shall provide the anti-phishing recommendations to consumers, such as establish consistent e-mail policies, provide an avenue to allow consumers to verify legitimacy of e-mails, use monitoring techniques to identify fraudulent phishing sites, educate consumers of the risks associated with phishing and provide an easy method to report phishing scams (Baker *et al.*, 2006). On the other hand, to increase switching barriers, the providers shall give a satisfied experience of trading with the consumers to build confidence in the customer–provider relationships. If consumers cannot expect that the new service provider does as well as or better than the old one, rational consumers may prefer staying with the old one instead of switching to a new provider (Mittal and Lassar, 1998).

This concept can be generalized and applied to other service sectors. For example, financial consultant services also involve high PR conditions for consumers (Yiu *et al.*, 2007). That is, PR may affect consumers' judgments to select the consultants in the first contact. Thus, the consultants may use risk-reducing strategies to acquire customers, such as high reputation of store brand, free interviews and service guarantees (Chang and Chen, 2008; Roselius, 1971). Through these ways, consumers can easily feel the reduction of PR, and increase their willingness to buy. However, this does not mean that consumers will be loyal to the consultant, unless they have no better choices (Wu, 2011).

Therefore, in markets where competition is intense, practitioners shall put emphasis on how to reduce PR to increase switching barriers for customer retention. Thus, the best strategy to retentive customers is to mitigate PR and enlarge SCs against the competition. To avoid the effect of reducing PR, practitioners should consider the services difficult for competitors to imitate (Klemperer, 1987). This can increase the barriers to competition, further lock in the consumers and prevent the switch to other service providers (Kuhlmeier and Knight, 2005; Kuisma *et al.*, 2007).

5.2 Limitations and suggestions

Along with these important implications, this study contains some limitations and suggestions. First, a sample bias may exist because of the sampling through an online survey in a specific Web site. Second, the research model used in this study is intentionally simplified. The two constructs in the theoretical model account for only approximately 42 per cent of the variance of CL, indicating that some of the important predictors may be missing. Other antecedents of CL, such as service quality, retailer reputation, customer satisfaction and customer experience (Cox and Dale, 2001; Lin and Sun, 2009) may also be added as control variables in this study to further enhance the variance of CL and to fill in missing predictors.

Third, it is assumed that PR in this study refers to the risk perception of the online retailer, excluding the concerns of products or services. Future studies may compare the causal relationship among PR, SCs and CL in different products or services, such as books and apparel. Fourth, the results of this study are based on cross-sectional data analysis; therefore, the causal relationships could only be inferred rather than proven as

Lin (2011) noted. A precise test can use a longitudinal study to assess this aspect. By adopting a longitudinal study, future studies can examine the research model in a long-term period and make comparisons (Chang and Wang, 2011), and thus obtain greater insight for managing PR to customer retention in the context of e-commerce.

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Further reading

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