The Moderating Effect of Switching Barriers: Online Stock and Derivatives Trading

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***Abstract*—This study attempts to develop a research model that examines the direct effects of customer satisfaction and switching barriers on customer retention as well as the moderating effect of switching barriers on the relationship between customer satisfaction and customer retention in retail online stock and derivatives trading industry in Hong Kong. An online questionnaire was employed as the means of data collection. The significant positive effects of customer satisfaction and switching barriers on customer retention are confirmed. In addition, the significant negative moderating effect of switching barriers on the relationship between customer satisfaction and customer retention are also confirmed.**

***Keywords*—customer retention; customer satisfaction; switching barriers; moderating effect; retail online stock and derivatives trading**

I. INTRODUCTION

The share of retail investors in the Hong Kong stock market has reached a new high, according to the Retail Investor Survey 2011 conducted by Hong Kong Exchanges and Clearing Limited (HKEx). Conducted during the period from 14 November to 23 December 2011, this survey found that the number of adults who had invested in stocks or derivatives or both, listed on the HKEx securities market, had reached a new high of 2.15 million or 35.7 per cent of adult population of Hong Kong. This was above the figure of 35.0 per cent recorded in 2009 and similar to the level in 2007 [1]. Online stock trading continues to grow and banks are the major trading channel; the survey found that 68.7 per cent of investors had traded stocks online during the 12-month period in 2011, up from 66.9 per cent in 2009, while 67.2 per cent of investors had traded derivatives online during the same 12-month period, compared to 69.1 per cent in 2009, as depicted in Figure 1.

Generally speaking, customer retention in the Internet economy is believed to be more challenging than in the traditional economy. Retail investors are now more demanding than ever before. They feel more empowered to make their own decisions because of easier availability of information and want their needs met immediately, perfectly, and for free. The investors have many similar alternatives to choose from, for online stock and derivatives trading. Unless given a compelling reason for choosing a particular firm, they tend to switch service providers frequently [2], one reason being that online traders can compare alternatives more easily than non-online traders, especially in the case of functional products and services. A competing offer is, as they say, only a few clicks away on the Internet. It is because of this potential for "frictionless commerce" that many managers fear the heightened expectations of online customers' service expectations, which invariably results in low satisfaction and a tendency toward switching to competing services [3].

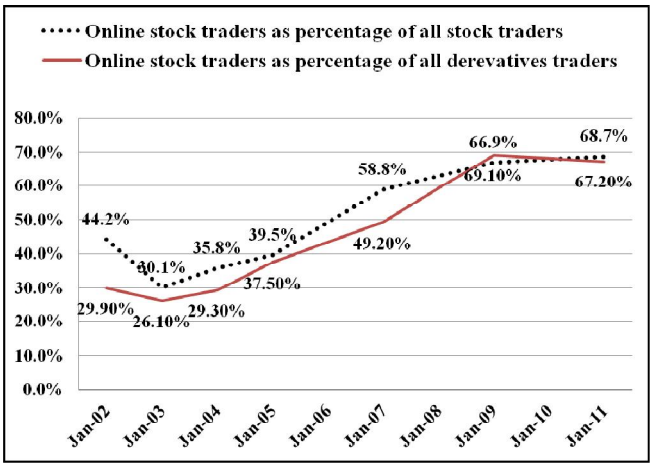

Figure 1. Trend of Online Stock Traders and Online Derivatives Traders (2002 – 2011)

However, growth of online trading of stock and derivatives is slowing and the market is becoming increasingly competitive, pushing providers to focus on maintaining market share by retaining current customers. A 5 per cent increase in customer loyalty has been shown to produce an increase of 85 per cent in profitability in the banking industry [4]. Therefore, managing effective customer retention can be regarded as an important strategy in the online retail stock and derivatives trading industry. Obviously, online researchers need to examine the ways in which firms offering online trading in stock and derivatives can retain their online customers [3]; once a customer has adopted and used online trading, the next logical step for managers seems to be to find ways of retaining users. However, despite the rapid growth of retail online stock and derivative trading and the importance of customer retention, empirical investigations for examining factors that lead to retention of retail traders have been sparse.

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II. Research Objectives and Model

The magnitude of customer satisfaction has traditionally been viewed as the key measure of a company's ability to retain customers. Ideally, firms should use switching barriers as a complementary strategy, in addition to working towards enhancement of customer satisfaction since switching barriers influence customer retention independently, as well as in conjunction with customer satisfaction [5, 6]. However, switching barriers can sometimes result in some customers who are assumed to be satisfied but are actually dissatisfied; they do not switch because of high switching barriers. Therefore, the level of switching barriers may have a moderating effect on the relationship between customer satisfaction and customer retention. Specific objectives of this study are to:

i. examine the direct effects of customer satisfaction and switching barriers on customer retention, and the simultaneous influence of customer satisfaction and switching barriers on customer retention;

ii. examine the moderating effect of switching barriers on the customer satisfaction-retention linkage.

A research model that links customer satisfaction and switching barriers and customer retention is proposed, based on a review of extant literature [3, 5, 6], as depicted in Figure 2.

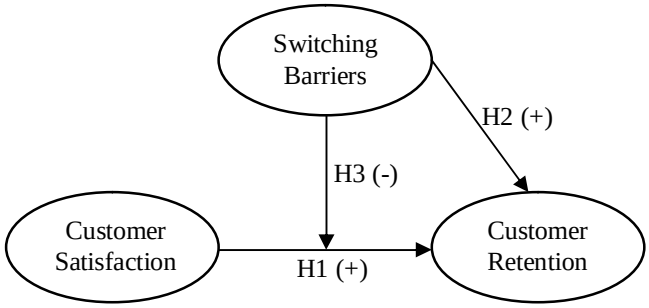

Figure 2. Research Model

III. Literature Review

A. Customer Satisfaction as a Driver of Customer Retention

Though the role of customer satisfaction in retaining customers is now perceived as a relatively complex phenomenon [6, 7, 8], customer satisfaction has traditionally been regarded as a fundamental determinant of long-term customer behavior [9, 10]. The higher the customer satisfaction is, the greater is the level of retention [3, 5, 6, 11, 12]. Cronin and Taylor [13] and Patterson et al. [14] found customer satisfaction to have a significant positive effect on repurchase intention in a range of services. Day et al. [15] said client satisfaction is unquestionably the principal strategy for retaining current clients in professional services. Kotler [16] stated that the key to customer retention is customer satisfaction. Based on the aforementioned, the first hypothesis is proposed as follows:

H1: The higher is the level of customer satisfaction, the higher is the level of customer retention.

B. Switching Barriers as a Driver of Customer Retention

When customers believe the barriers to switching service providers are high, they tend to continue to be loyal to the existing service provider [17]. Switching barriers determine the competitiveness of the market environment since high switching barriers discourage consumers from switching to alternate providers [18]. Lee et al. [5], Ranaweera and Prabhu [6] and Wong [3] tested and confirmed the positive effect of switching barriers on customer retention in mobile phone services industry in France, the fixed line telephone market in the UK and retail Internet banking services in Hong Kong, respectively. In line with existing studies, the second hypothesis is:

H2: The higher is the level of perceived switching barriers, the higher is the level of customer retention.

C. Moderating Effect of Switching Barriers

Other things being equal, customer satisfaction and switching barriers are thought to be the key antecedents of customer retention. However, when switching barriers are low, a customer staying or leaving would depend upon satisfaction with its relationship with the existing service provider [3]. Gronhang and Gilly [19] argued that a dissatisfied customer may remain loyal because of high switching barriers. Lee et al. [5] stated that customer loyalty may be due to either satisfaction or high switching barriers which make it difficult for customers to change providers. Similarly, switching can be caused by either dissatisfaction of the customer or low switching barriers which make switching easy. Nevertheless, switching barriers, when sufficiently high, do act as a significant constraint that discourages customers from switching to alternative providers [3, 5, 6]. Thus, when customers perceive switching barriers to be high, they tend to stay with their existing service providers even if they are dissatisfied. A number of respondents indicated in the pilot study that they did not want to switch to another online stock and derivatives trading services provider due to the high switching barriers, though they were not very satisfied with existing providers. Therefore, the third hypothesis proposed is:

H3: For a given level of customer satisfaction, the higher the level of perceived switching barriers is, the higher is the level of customer retention.

IV. Methodology

A. Selection of Industry

This empirical study has used data of the retail online stock and derivatives trading industry in Hong Kong. The market is regarded as a continuous purchasing setting that is qualitatively distinct from discrete purchasing patterns. Since the relationships between service providers and traders are generally long-term, the setting is suitable to study the effects of overall customer satisfaction and perceived switching barriers on customer retention. Second, in a continuous purchasing setting, switching the main service provider is not

an easy walk to another provider; barriers to switching to another service provider requires considerable time and effort and, therefore, switching decision can be made only after considerable thought.

B. Questionnaire Design

Data were collected by administering a questionnaire online. Items were first written in English and then the Chinese version of the questionnaire was developed in accordance with recommendations of Brislin [20], to minimize the problem of lack of equivalence between English and Chinese versions. The English version of the questionnaire was first translated into Chinese and then it was translated back into English by another translator to check the accuracy. Inconsistencies observed were reconciled by discussions between the two translators. The precise text of the questionnaire was based on the original English language version, adjusted such that it was smooth and natural sounding, as well as equivalent in meaning, in both languages. The final version of the questionnaire was pilot tested with 30 online stock and derivatives traders to ensure the appropriateness of questions' wordings, format and structure. The target population was traders aged 18 or above. Participation in the study was voluntary. The online questionnaire was placed on a free survey server for two months from 1 May 2012 to 30 June 2012 and was also submitted to popular free search engines.

C. Measures

Multiple items were used to measure customer retention, customer satisfaction and switching barriers, using seven-point Likert-type scales validated in extant literature. Structures of measures used for the three principal dimensions are discussed and explained in the following.

Customer Retention (CR). The inclination of an Internet bank customer to stay with the existing online stock and derivatives trading provider in the future is defined as customer retention, for the purposes of this study. Accordingly, customer retention is measured by adapting a three-item formative scale, on a seven-point Likert-type scale with anchors "1=strongly disagree" and "7=strongly agree". This scale has been used to measure "propensity to leave" in a business-to-business relationship [21], in an offline business-to-customer relationship [6] and an online business-to-customer context [3]. The likelihood of the respondents leaving their main Internet banks at three different points of time in the future (three months, six months and one year) was measured. The first item (three months) was assigned a weight of 4, the second was assigned 2 and the third was assigned a weight of 1 [21]. The overall score was the sum of the scores on the three weighted items. Thus, the scoring range for customer retention was 1-7.

Customer Satisfaction (CS). Customer satisfaction is conceptualized as evaluation of an emotion, i.e. the degree to which traders believe their main providers evoke positive feelings. Customer satisfaction was measured using a three-item scale, on a seven-point Likert-type scale with anchors "1=strongly disagree" and "7=strongly agree". These items were adapted from the satisfaction measure developed by Cronin et al. [22] and drew upon the widely used definition of satisfaction, "an evaluation of an emotion" [23]. Concurring with this view, Rust and Oliver [24] suggested that customer satisfaction reflects the degree to which a customer develops positive feelings about the service provider. A multiple item measure of customer satisfaction was adopted by Cronin et al. [22]; a set of emotion-based measures from Westbrook and Oliver (1991) was adapted to build a new set of measures. They called it a cumulative or overall satisfaction measure. The overall customer satisfaction is more fundamental and useful than transaction-specific customer satisfaction for predicting a customer's subsequent behaviors and a firm's past, present and future performance [8, 25]. Following Cronin et al. [22] in this study, the overall satisfaction includes three items: one item reflects the emotional category and two are of the evaluative category. The overall customer satisfaction score of each respondent is calculated by adding scores of the three items and then dividing it by three; the range of final scores was 1-7.

Switching Barriers (SB). Switching barriers are conceptualized as the perception of the magnitude of barriers required to be crossed for switching from one service provider to another. The cost of switching or terminating a relationship has been identified as a factor that contributes to continuity of a relationship [21]. However, while Morgan and Hunt thought of switching cost as an economic cost only, switching barriers may comprise psychological and emotional barriers too. Switching barriers was measured using a five-item scale, on a seven-point Likert-type scale with anchors "1=strongly disagree" and "7=strongly agree". These items were adapted from measures developed by [17]. Switching barriers perceived by respondents were calculated by adding scores of the five items and then dividing by five. The scoring range of switching barriers was 1-7.

V. Results

A. Response Rate and Non-response Bias

We secured a total of 810 respondents, considered to be sufficient for data analysis. For populations of 10,000 and more, most experienced researchers consider a sample size between 200 and 1,000 respondents [26]. The number of those who visited the web page (vis-à-vis the number of actual survey responses) was not monitored. The response rate was acceptable but non-response bias [27] was also tested. Specifically, respondents were divided into two groups, namely, early and late respondents, in order to compare mean values for the three constructs for the two groups. It was assumed that late respondents were likely to be similar to non-respondents. No significant differences were observed between the two groups at the 0.05 confidence level, for any of the three constructs, confirming the absence of any significant non-response bias.

B. Construct Validity and Reliability Tests

All the three constructs, customer retention, customer satisfaction and switching barriers, were measured using multiple items, on seven-point Likert-type scales with anchors "1=strongly disagree" and "7=strongly agree", based on scales

already validated in extant literature. Exploratory factor analysis was employed to confirm the underlying structure of the measures [28]. A common factor analysis with varimax rotation was undertaken for the 11 items of customer satisfaction, switching barriers and customer retention. A three factor solution was indicated by the evaluation of eigenvalues and the scree plot. The rotated factor matrix (Table 1) shows factor loadings, which are the correlations between the variables and the factors for a varimax rotation. Items having loads of 0.50 or greater on one factor and 0.35 or below on the other two factors [29] were considered. The factors are interpreted by the size of the loadings (Table 1). Five variables, SB1, SB2, SB3, SB4 and SB5CS1, are associated with the first factor, i.e. switching barriers. Three variables, CS1, CS2 and CS3, are related to the second factor, i.e. customer satisfaction. Finally, the remaining three variables, CR1 and CR2 and CR3, are associated with the third factor, i.e. customer retention. The results confirmed that the three constructs, already validated in similar internet settings [3], can be applied in online stock and derivatives trading. The proportion of variance accounted for by each of the rotated factors indicates its relative importance. As reported in Table 1, the first, second and third variables accounted for 43.373%, 26.829% and 10.891%, respectively, of the total variance of the eleven items. In total, the three factors accounted for 81.093% of variance of all variables. The reliability of the scales used for customer retention, customer satisfaction and switching barriers was measured in terms of Cronbach's alpha. The lowest estimate of reliability was reported for the customer retention scale (alpha=0. 868), as reported in Table 1. Estimates for customer satisfaction and switching barriers scales are 0.905 and 0.938, respectively. Since the Cronbach's alpha of each scale is above the acceptable value of 0.700 [30], all three scales were considered reliable.

Table 1: Construct Validity and Reliability Tests

Scale Items		Factors		
		1	2	3
Switching Barriers(SB)				
SC1	Changing stock and derivatives main trading services provider is risky as the new provider may not give good service.	0.885	0.017	0.130
SC2	Terminating my current relationship with my main stock and derivatives trading services provider would be frustrating.	0.871	0.028	0.142
SC3	It would cost a great deal of time to change my main stock and derivatives service provider.	0.843	0.024	0.154
SC4	Considering everything, the cost of getting a new main stock and derivatives service provider would be high.	0.843	0.017	0.170
SC5	It would cost me a lot of effort to change my main online stock and derivatives trading service providers.	0.838	0.010	0.130
Customer Satisfaction(CS)				
CS1	I think I chose the right main online stock and derivatives trading service provider.	0.060	0.899	0.219
CS2	Overall, I am happy with my main stock and derivatives trading service provider.	0.026	0.835	0.216
CS3	My main online stock and derivatives trading service provider meets my expectations.	0.026	0.804	0.209
Customer Retention(CR)				
CR1	What do you think are the chances of you switching to an alternate main trading service provider within the next six months?	0.181	0.193	0.829
CR2	What do you think are the chances of you switching to an alternate main trading service provider within the next one year?	0.182	0.219	0.759
CR3	What do you think are the chances of you switching to an alternate main trading service provider within the next three months?	0.183	0.289	0.738
Eigenvalue		4.771	2.951	1.198
Explained variance (rotated factors)		43.373	26.829	10.891
Internal consistency reliability		0.938	0.905	0.868

C. Descriptive Statistics

The mean scores of customer satisfaction, switching barriers and customer retention were 3.612, 3.547 and 4.001 respectively. As customer satisfaction and switching barriers were less than the central point of 4 in a seven-point Likert-type scale, these indicate that respondents generally perceived less satisfaction and low switching barriers towards their main online stock and online derivatives brokers. However, the customer retention mean of more than 4 indicates respondents were generally loyal to their main stock and online derivatives brokers. Skewness and kurtosis of the three constructs were also computed and values of all the three constructs fell within acceptable limits of ±1, suggesting the data did not show deviations from normality [31].

D. Hypotheses Testing

The three hypotheses formulated and proposed in this study were tested by moderated hierarchical multiple regression analysis. The interaction variable (moderator) was derived by multiplying the customer satisfaction variable by the switching barriers variable. Regression coefficient of the product term was significant, confirming the moderating effect of switching barriers on the relationship between customer satisfaction and customer retention. The direction of the moderating effect explains how customers with the same level of satisfaction become more loyal. In hierarchical multiple regression analysis, independent variables are entered in steps, in accordance with theoretical or logical considerations [32]. Following [3, 6], independent variables were entered, based upon logic considerations. The resultant models are shown in Table 2.

Table 2. Results of Regression Analysis of Drivers

Independent variables	Model 1	Model 2	Model 3
CS	0.455*	0.434*	0.707*
SB		0.305*	0.564*
CS × SB			-0.411*
R^2	0.207	0.299	0.316
Adjusted R^2	0.206	0.297	0.313
F	210.697*	106.254*	19.584*

Dependent variable: Customer retention

Notes: $\alpha<0.01$. β coefficients have been reported. All changes in R^2 values had a significant F statistic (*$p<0.01$).

The effect of customer satisfaction on customer retention was tested by Model one while Model two tested the impact of switching barriers, as well as the combined effect of customer satisfaction and switching barriers, on customer retention. Model three was used to test any significant moderating effects, over and above the main effects of the two independent variables. Model 1 (the initial model) addressed the simple effect of customer satisfaction on customer retention (Table 2) and had an adjusted R^2 value of 0.206, indicating that 20.6% of the variance in customer retention could be explained by customer retention. The switching barriers variable was added to Model 2 to examine the main effects of both independent variables acting together. This resulted in the adjusted R^2 value increasing to 29.7%, which was statistically significant (F change = 106.254, p<0.001). Finally, the interaction variable was added to the model, resulting in a further increase in the adjusted R^2 value to 31.3%, which too was statistically significant (F change = 19.584, p<0.001). Overall, Model 3 explains the highest variance in the dependent variable and is the best model derived from this study (see Figure 3).

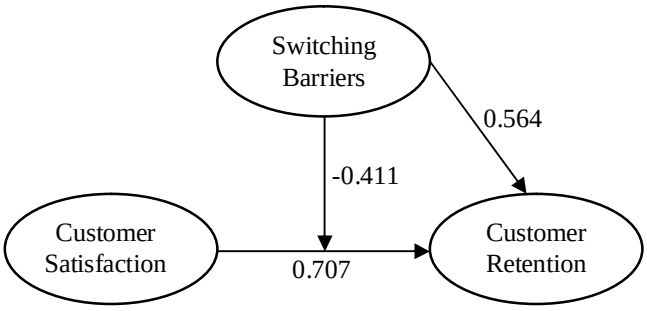

Figure 3. Results of Research Model

The results of Model 3 support Hypotheses H1 and H2 as the main effects of customer satisfaction (β = 0.707, p<0.01) and switching barriers (β = 0.564, p<0.01) are significant and positive. However, customer satisfaction is obviously a stronger driver of customer retention than switching barriers (βcs = 0.707 > βsb = 0.564); Model 2 also supports this finding (βcs = 0.434 > βsb = 0.305). Model 3 provides evidence supporting H3. Specifically, the interaction effect of customer satisfaction and switching barriers is significant and negative (β = -0.411, p<0.01), indicating that the higher the level of switching barriers is, the lower is the effect of customer retention on customer satisfaction. This shows that switching barriers constrains those who are less than satisfied from leaving their main online bank brokers. Thus, switching barriers, where appropriate, can be an effective and alternative means of strengthening customer retention.

E. Factorial ANOVA Analysis

Factorial ANOVA was applied for further probing of the specific nature of the moderating effects (H3) [33]. Descriptive and statistical results and visual outputs were examined. First, medians of scores for the two independent variables were computed. Second, the entire sample was split into groups of respondents, above and below the median value and then mean values of customer retention rates of these groups were compared. Finally, median values were plotted to test whether they were statistically different. Figure 4 shows consistently higher mean scores on customer retention in the case of high switching barriers at each level of customer satisfaction, thereby providing additional support to H3.

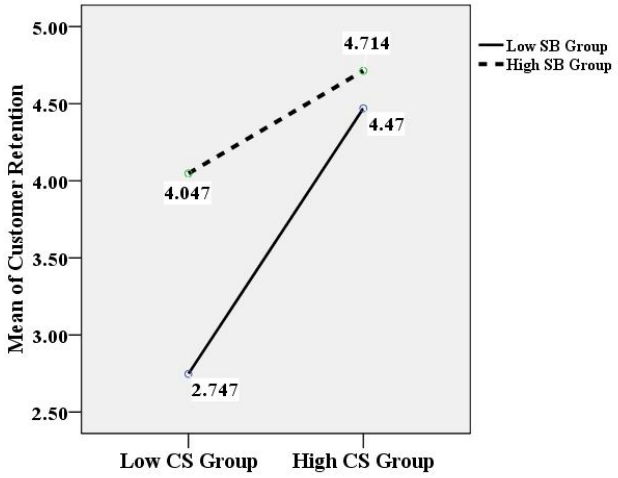

Figure 4. Mean Customer Retention across Different Levels of Customer Satisfaction and Switching Barriers

Table 3 shows that mean values of customer retention in the low customer satisfaction group under low switching barriers are quite different from those under high switching barriers (2.747 against 4.047). However, these values are quite similar in the case of high customer satisfaction group (4.470 against 4.714). Overall, for a given level of customer satisfaction, the higher the level of perceived switching barriers is, the higher is the level of customer retention (p <0.01).

Table 3: Descriptive Results

Customer Satisfaction	Switching Barriers	Mean of Customer Retention	Standard Deviation	N
Low	Low	2.747	1.383	186
	High	4.047	1.535	139
High	Low	4.470	1.243	172
	High	4.714	1.196	214

F. Additional Analysis

Previous researches on self-service technologies as well as technology adoption cycles indicated that the importance of consumer heterogeneity in determining their behaviour in technology settings [34, 35]. Therefore, whether the overall scores for both genders support the three hypotheses independently was also examined.

Regression Analysis by Gender: 52.6% of respondents were male and 47.4% were female (Table 4). Results in Table 4 also show that the main effects of customer satisfaction and switching barriers are significant and positive for both male and female segments, thus further confirming Hypotheses H1 and H2. These results also indicate that customer satisfaction is a stronger driver of customer retention than switching

barriers in case of male as well as female customers. Interestingly, switching barriers have a significant moderating effect on the customer satisfaction-retention linkage for both males and females, thus further confirming Hypothesis H3. Thus, regardless of gender, it can be said that switching barriers play a critical facilitating role to drive customer retention.

Table 4: Results of Regression Analysis by Gender

Independent variables	Male	Female
CS	0.661*	0.695*
SB	0.622*	0.461*
CS × SB	-0.367*	-0.388*
R^2	0.364	0.258
Adjusted R^2	0.359	0.252
Sample size	426 (52.6%)	384 (47.4%)

Dependent variable: Customer retention

Notes: α<0.01. β coefficients have been reported. All changes in R^2 values had a significant F statistic (*p<0.01).

Factorial ANOVA Analysis by Gender: Figures 5 and 6 illustrate the consistently higher mean scores on customer retention for high switching barriers group than low switching barriers group, at each level of customer satisfaction, for male as well as female segments, thereby providing additional support for H3

VI. Conclusions

A. Discussions of Findings

All hypotheses proposed in this study have been supported by empirical results and this applies to males as well as females. Since switching barriers items involve economic and psychological costs (Table 1), retail online stock and derivatives trading services providers may try to expand switching barriers for retaining customers. Nevertheless, previous research has showed that customers can resent switching barriers if a feeling of complete entrapment develops [36]. For example, some trading services providers offer very attractive terms for stock transactions in the beginning but customers end up paying higher commission rates per transaction. Such practices have had negative effects because they make the customers feel hassled indicate the need for a more detailed knowledge of contract terms. One way to avoid customer resentment is to create switching barriers that also add value to the service [6]. For example, trading services providers may regularly conduct market research to understand what features their customers want and then formulate ways of increase switching barriers in a more positive manner.

B. Limitations and Future Research

This research represents one of the very few empirical inquiries into a phenomenon of great managerial and academic interest. However, a number of limitations do qualify the findings of this research. First, the theoretical models need to be tested in other kinds of e-commerce industries, such as Internet retailing and Internet travel agencies, in order to strengthen the generalizability of the findings. Second, there is need to analyze the moderating role of switching barriers on the relationship between customer satisfaction and customer retention in different customer segments defined on such criteria as income level, education level and age groups, in order to examine heterogeneity of the customer satisfaction - retention linkage among different advanced banking segments. Third, the fact that more than ninety-seven percent of respondents are Hong Kong Chinese and have presumably lived in Hong Kong, may have caused selection bias. These customers may possess specific cultural characteristics that limit the generalization of research findings to other populations. Whether the findings are sensitive to different geographic locations and cultural contexts needs to be examined by replicating this study with samples from different regions in the world.

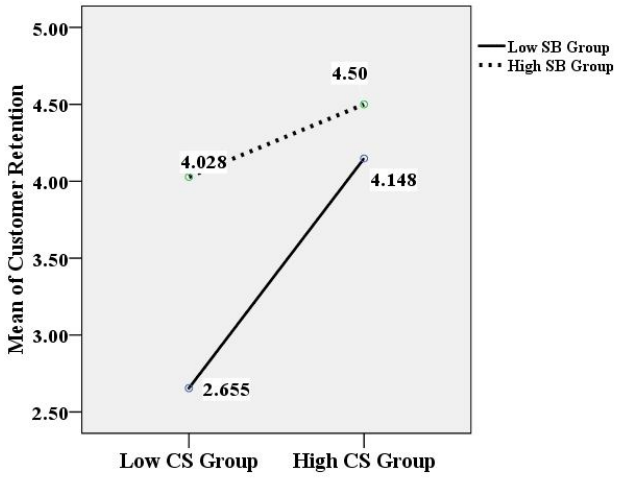

Figure 5. Mean Customer Retention across Different Levels of Customer Satisfaction and Switching Barriers by Male Segment

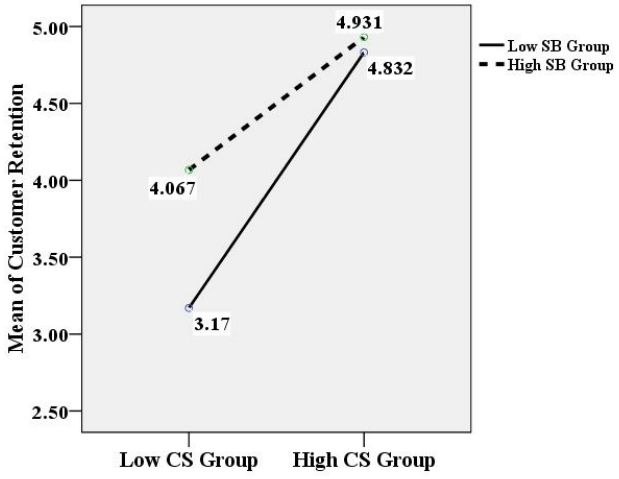

Figure 6. Mean Customer Retention across Different Levels of Customer Satisfaction and Switching Barriers by Female Segment

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