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# How to Encourage Customers to Use Legal Software

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**ABSTRACT.** This study attempts to identify customer retention strategies for legal software and discusses their effectiveness for three consumer groups (stayers, dissatisfied switchers, and satisfied switchers). Although previous studies propose several antipirating strategies, they do not discuss how to enhance customer intentions to use legal software, which is crucial for software companies. The authors provide four generic retention strategies developed from both antipiracy and customer loyalty literature. The results indicate lower-pricing, legal, communication, and product strategies all enhance customer purchase intentions toward legal software. The lower-pricing strategy is more useful for stayers and dissatisfied switchers, and the communication strategy is most useful for dissatisfied switchers. Both the legal and product strategies have similar impacts on purchase intentions across the three segments. From a firm perspective, a product strategy is most worthwhile and useful across all segments.

**KEY WORDS:** antipiracy, piracy, retention, software, stayers, switchers

## Introduction

In recent decades, international piracy has become a serious problem and received significant research attention (Albers-Miller, 1999; Bush et al., 1989; Harvey, 1987; Harvey and Ronkainen, 1985; Nia and Zaichkowsky, 2000; Sims et al., 1996). Pirated imitation goods possess specific features, including extremely low prices, the absence of warranties or guarantees, incorrect spelling of existing brand names, and smeared or blurred printing of the package (Jacobs et al., 2001). The most serious

pirating activity, however, pertains to complex technology products (Jacobs et al., 2001).

Software piracy, defined as the unauthorized copying of an organization's internally developed software or illegal duplication of commercially available software to avoid fees (Wagner and Sanders, 2001), represents the greatest problem facing the modern software industry. According to a 2005 Global Software Piracy survey by the Business Software Alliance (BSA), the piracy rate of software in the world has reached 35% (see <http://www.bsa.org/globalstudy/upload/2005-Global-Study-English.pdf>). Some Asian countries have been called "one disk" countries because consumers purchase a few disks legitimately and then make multitudinous copies illegally (Jacobs et al., 2001). Accordingly, encouraging customers to use legally obtained software has become a major issue in Asian markets.

Prior research on software piracy has focused primarily on the effects of macro (e.g., social, economic, and industrial) conditions on piracy behaviors (Banerjee et al., 2005; Katz, 2005), customers' ethical attitudes toward those behaviors (Gopal et al., 2004; Tan, 2002; Taylor and Shim, 1993; Wagner and Sanders, 2001), or the strategies companies can use to control piracy (d'Astous et al., 2005; Gopal and Sanders, 1997; Malhotra, 1994; Peace et al., 2003; Straub, 1990). However, from a software company's perspective, the fundamental issue is encouraging customers to use its legal software, which suggests that a company must develop its retention programs, not just traditional antipirating attempts, to enhance customers' intentions to use its legal software.

To provide insights into the design and implementation of effective software loyalty programs, we divide software customers into three segments:

dissatisfied switchers, satisfied switchers, and stayers. For example, most users access the Web through either Netscape or Internet Explorer. If a customer was not satisfied with the quality of (legal or illegal) Netscape or illegal Explorer and switched to legal Microsoft Internet Explorer, he or she represents a dissatisfied switcher of Microsoft Explorer. However, if a customer was satisfied with Netscape's or illegal Explorer's quality and switched to the legal version of Internet Explorer (due to its preinstallation in hardware, compatibility with other Microsoft software bundles, or lack of access to Netscape), he or she belongs to the satisfied switchers of Microsoft Explorer, because the switching reasons are other than dissatisfaction. Finally, if a user never uses Netscape or illegal Explorer and only accesses the Web through legal Internet Explorer, he or she belongs to the group of stayers of Microsoft Explorer.

Previous literature demonstrates that the psychological state and behavior of one customer segment differs significantly from that of other segments (Ganesh et al., 2000; Keaveney and Parthasarathy, 2001). Therefore, we argue that customers in the three segments we define will entail different relationships between retention strategies and customer purchase intentions. Specifically, we explore loyalty programs and identify their effectiveness across stayers, dissatisfied switchers, and satisfied switchers. In the following sections, we review prior research about retention strategies, then present our research methodology, including a delineation of the measurements used to test our hypotheses. Following an examination of the results, we conclude with some key managerial and research implications.

### **Literature review and hypotheses development**

Previous literature presents two main approaches to retaining customers. The first provides additional benefits (i.e., "carrot") (e.g., Chiu et al., 2005; Crosby and Stephens, 1987; Gwinner et al., 1998; Patterson and Smith, 2003). Prior studies demonstrate that relational benefits are important to encourage customers to engage in long-term relationships with the firm (Gwinner et al., 1998),

and satisfied customers are more likely to continue patronizing a service provider than are dissatisfied customers (Crosby and Stephens, 1987; Oliver et al., 1997; Szymanski and Henard, 2001). The second approach raises customer switching barriers (i.e., "stick") (e.g., Bendapudi and Berry, 1997; Burnham et al., 2003; Patterson and Smith, 2003), which help sellers prevent buyers from switching through deterrents (Jones et al., 2000).

Similarly, a software company can adopt a carrot and/or stick strategy to retain customers. For example, using the carrot strategy, firms enhance customers' use of legal software through lower-pricing (Gwinner et al., 1998; Malhotra, 1994; Peltier and Westfall, 2000; Wiegner, 2004), communication (Delener, 2000; Gopal and Sanders, 1997; Malhotra, 1994), and value-added product strategies (Gopal and Sanders, 1997; Malhotra, 1994), which provide additional benefits. With the stick strategy, the software company raises barriers to prevent customers from switching, such as legal (Delener, 2000; Gopal and Sanders, 1997; Harvey, 1987; Malhotra, 1994; Peace et al., 2003) and product-based protection (Malhotra, 1994; Mohr et al., 2005) barriers. Thus, four generic strategies exist for a software company to retain customers: lower-pricing, legal, communication, and product (which includes value additions and product-based protections).

#### *Lower-pricing strategy*

Price is a primary determinant of whether customers purchase a specific product (Lichtenstein et al., 1993). The lower-pricing strategy, which belongs to the carrot approach, occurs when a company lowers its prices or uses discounts to encourage customers to buy its legal software (Gwinner et al., 1998; Malhotra, 1994; Lichtenstein et al., 1993).

Many studies discuss how pricing influences consumers and products (Kim et al., 1992). From a customer viewpoint, consumers select the products with the best values and prices (Tellis and Gaeth, 1990). For example, Peltier and Westfall (2000) reveal that a primary motivation for engaging in exchanges is to save money. A company could take advantage of the low costs of copying and

distributing digital media to drive down the cost and thereby reduce the incentive consumers have to steal (Mohr et al., 2005).

In Asia, some companies use pricing strategies to retain customer loyalty and battle pirates. For example, Kingsoft, a brand of translation software created in China, reduced its price to a level described by some buyers as “unbelievably low” to defend against potential pirated software ([http://english.people.com.cn/english/200010/18/eng20001018\\_52937.html](http://english.people.com.cn/english/200010/18/eng20001018_52937.html)). As software prices continue to fall, the incentive for piracy diminishes (Wiegner, 2004).

Therefore, if a software publisher adopts a lower-pricing strategy, customers may experience greater motivation to buy its legal software at the special price. We propose

*H<sub>1</sub>*: A lower-pricing strategy has a positive impact on purchase intentions toward a company’s legal software.

#### *Legal strategy*

The legal strategy, or actions a company takes against pirates, including antipirating regulations or laws (Bush et al., 1989), raises customer switching barriers and belongs to a stick strategy. In this context, the concept of “fair use” remains one of the most important and least understood aspects of copyright law; it states that users must have a clear understanding of what constitutes the fair use of software programs, digitized images, and computerized text (Malhotra, 1994).

If a piracy problem is traced to another country, the victim company can attempt to gain support from the government of the country where the problem exists (Jacobs et al., 2001). Previous research suggests an inverse relationship between the perceived severity of punishment and willingness to buy illicit goods (Albers-Miller, 1999). Therefore, legal actions likely influence customer intentions to use legal software. Customers would stop buying pirated material if they were worried about disobeying the law or regulations. Furthermore, if a person considers an act morally unacceptable, he or she will take it into account when making a decision regarding that act (Tan, 2002), which should

enhance his or her purchase intentions toward legal software. Therefore, we propose that

*H<sub>2</sub>*: A legal strategy has a positive impact on purchase intentions toward a company’s legal software.

#### *Communication strategy*

The communication strategy involves software publishers disseminating information to consumers about not only the potential risks of illegal software, but also the benefits of legal software (Delener, 2000; Harvey and Ronkainen, 1985; Shultz and Saporito, 1996). Through this communication and education, the company provides extra benefits to consumers, such as satisfying their curiosity, increasing their sense of learning, and expanding their knowledge (Maslow, 1970), which makes this strategy a carrot approach. In addition to distributing information about the illegality of software pirating, software companies also might distribute information about the benefits of its software, usually through educational approaches.

Some software companies also use licensing agreements, “written” on the software media and replicated on any copies, to discourage piracy. In addition to deterring users from creating illegal copies, the licensing agreements make the user aware of the illegitimacy of unauthorized copies (Malhotra, 1994).

If a company informs consumers about the benefits of legal software and the damage of piracy, fewer fakes likely will be bought and sold. In addition, prior research suggests risks are critical factors that influence ethical decision-making. Perceived risks arise in situations in which consumers are uncertain about the outcome of their choice and concerned about the consequences of a poor or wrong decision (Fraedrich and Ferrell, 1992; Mitchell, 1992). Through its communications, a software company can persuade customers that legal software provides better services, quality, and guarantees, which will reduce their decision-making risks. So, we propose

*H<sub>3</sub>*: A communication strategy has a positive impact on purchase intentions toward legal software.

### *Product strategy*

In previous studies, a product strategy has been defined as the provision of added value or extended services to registered customers (Gopal and Sanders, 1997; Malhotra, 1994) or the use of technology to protect the product, such as software-based protection methods that embed special codes in the software (Malhotra, 1994; Mohr et al., 2005). Therefore, a product strategy contains both carrot and stick elements.

Publishers continually upgrade their software, and Gopal and Sanders (1997) note that preventive strategies can include providing customer support only to registered users and creating documentation that is difficult to duplicate. If consumers buy legal software, they can receive the benefits of upgraded or updated software. Furthermore, publishers can include resources pertinent to innovative new designs, so they can market new software with new designs and functions to maintain customers. From a customer viewpoint, such additional services belong to the special treatment benefit category, which encourages customers to engage in long-term relationships (Gwinner et al., 1998).

Software publishers also frequently use special codes in their products to prevent copying. Many companies also build sophisticated encryption software into their digital products, which can make it more difficult for pirates to copy digital media and thereby increase the costs of illegal software (Mohr et al., 2005). Accordingly, the product strategy, which includes adding value and using technology to protect the product, is a good method for publishers to enhance customers' use of legal software. Therefore, we propose

*H<sub>4</sub>*: A product strategy has a positive impact on purchase intentions toward legal software.

### *The effectiveness of antipirating strategies across customer switching segments*

Researchers recently have recognized that customer switching behavior has deleterious effects on firms' profitability (Ganesh et al., 2000; Keaveney and Parthasarathy, 2001). However, most prior research focuses on the "switched-from" rather

than the "switched-to" firm (Ganesh et al., 2000). Therefore, there is a lack of research exploring the behaviors of customers after they have switched to a new firm.

Ganesh et al. (2000) suggest that a firm's customer base comprises three groups: stayers, dissatisfied switchers, and satisfied switchers. Stayers have not switched from other companies, dissatisfied switchers have switched from other companies because of their prior dissatisfaction, and satisfied switchers have switched from other companies for reasons other than dissatisfaction (Chiu et al., 2005; Ganesh et al., 2000; Roos et al., 2004; Wangenheim and Bayon, 2004). For a specific software (e.g., PC-cillin), stayers do not use any alternates (e.g., Norton Anti-Virus, illegal PC-cillin) and use only this software in the particular software category (e.g., anti-virus). Dissatisfied switchers have switched from another alternate (e.g., Norton Anti-Virus, illegal PC-cillin) in this software category because of their dissatisfaction. Finally, satisfied switchers have switched from others in the software category for reasons other than dissatisfaction.

Satisfied switchers turn to a new firm, even though they are not necessarily dissatisfied with their previous firm, so their expectations stand at least at the level previously held. Furthermore, compared with stayers and dissatisfied switchers, they are less satisfied with the switched-to company and thus are less loyal to the current service providers (Ganesh et al., 2000). For example, some satisfied switchers may have used illegal software before and switched to legal software because they no longer had access to illegal copies. In this case, they remain satisfied with their prior experiences with illegal software. Moreover, we note that the prices of legal software cannot be as low as those of illegal software, so if the software company adopts a pricing strategy, it likely will be more beneficial for stayers and dissatisfied switchers than for satisfied switchers with their higher expectations (Ganesh et al., 2000). We propose

*H<sub>5a</sub>*: A lower-pricing strategy has a greater impact on purchase intentions among stayers and dissatisfied switchers than satisfied switchers.

Even if the psychological states and behaviors of customer segments differ (Keaveney and Parthasar-

athy, 2001), we believe people across segments are afraid of being punished by penalties or jail sentences for their illegitimate acts (Albers-Miller, 1999). Since software piracy is illegal, the decision to purchase pirated software should invoke ethical dilemmas and perceived criminal risks (Albers-Miller, 1999; Tan, 2002). Previous research supports a negative association between the perceived risk of being caught and unethical behavior (Albers-Miller, 1999; Cole, 1989; Feldman, 1977; Pitts et al., 1991), regardless of the customer segment. Therefore, we propose

*H<sub>5b</sub>*: The legal strategy has similar impacts on purchase intentions across customer switching segments.

Researchers also show that the nature and amount of a consumer's experience with a company represents an important determinant of satisfaction (Cadotte et al., 1987; Ganesh et al., 2000). According to expectancy-disconfirmation theory, consumers judge their satisfaction with a product by comparing their past experiences with the product performance they currently perceive (Oliver, 1980). The satisfaction judgments of dissatisfied switchers should be driven by disconfirmation, largely because of the salience of the service to these customers, so satisfaction judgments will be more extreme for this group (Ganesh et al., 2000). Therefore, dissatisfied switchers generally will be more satisfied with their current providers than will stayers and satisfied switchers.

In terms of purchase involvement, prior literature also suggests that dissatisfied switchers exhibit greater purchase involvement than stayers and satisfied switchers (Ganesh et al., 2000). They have more experience with buying software, because of their dissatisfaction with the previous company, and tend to spend more time searching for better software. When companies communicate the benefits of their products to dissatisfied switchers, these consumers likely will be more attracted because they know more about the software. Therefore, we propose

*H<sub>5c</sub>*: A communication strategy has a greater impact on purchase intentions among dissatisfied switchers than stayers and satisfied switchers.

Finally, dissatisfied switchers generally experience lower expectations about software as a result of their

previous dissatisfying experiences. Therefore, dissatisfied switchers are more satisfied with and loyal to their current companies than are stayers and satisfied switchers (Ganesh et al., 2000). If a company provides value-added services and embeds special codes into the software, dissatisfied switchers may be even more attracted because they hold fewer expectations, greater loyalty, and higher purchase involvement levels (Ganesh et al., 2000; Wangenheim and Bayon, 2004). Hence, we propose

*H<sub>5d</sub>*: A product strategy has a greater impact on purchase intentions among dissatisfied switchers than stayers and satisfied switchers.

## Methodology

### *Procedures and sample*

This study involves a survey of Taiwanese consumers for two reasons. First, according to the 2005 Global Software Piracy survey by the BSA, the rates of software piracy globally and in Taiwan are 35 and 43%, respectively, as of 2004 (<http://www.bsa.org/globalstudy/upload/2005-Global-Study-English.pdf>). Therefore, consumers in Taiwan have easy access to both legal and pirated software. Second, because of their cultural similarities, Taiwanese results can offer managerial implications for countries of Eastern Asia.

To ensure results that can be interpreted at a theoretical level, we include a broad range of software categories, such as anti-virus, translation, game, and video software. Respondent selected a single software company he or she had patronized recently to purchase legal software products and indicated his or her perceptions about the software company's retention strategies on a five-point scale from 1 (extremely disagree) to 5 (extremely agree).

In this study, about 30 students were invited to serve as data collectors. Each was given 20–30 copies of the questionnaire with USD 20–30 dollars pay. Also, each was asked to give the self-administered survey to persons who have purchased legal software in the past year in Taiwan. These students were instructed to include respondents across genders and ages. The technique using students as data collectors has been successfully adopted in previous marketing



TABLE I  
Demographics of the sample

Variable	Frequency	Percentage
<b>Gender</b>		
Male	290	52.3
Female	264	47.7
<b>Age</b>		
<20 years	51	9.2
21–30	285	51.4
31–40	150	27.1
>40	68	12.3
<b>Education</b>		
Graduate school	112	20.2
Undergraduate	303	54.7
High School	139	25.1
<b>Income</b>		
<\$10,000	138	24.9
\$10,000–\$20,000	234	42.2
\$20,000–\$30,000	153	27.6
>\$30,000	29	5.2

studies (e.g., Arnold and Reynolds, 2003; Gwinner et al., 1998).

In this data collection process, we distributed 750 questionnaires, of which we deemed 554 useful, for a response rate of 73.9%. The respondents were composed of 290 men (52.3%) and 264 women (47.7%). The sample sizes of the three different loyalty groups were as follows: 218 stayers, 161 dissatisfied switchers, and 175 satisfied switchers. The other demographics were shown in Table I.

### Measures

We developed 13 items (Table II) related to the measurement of antipirating strategies on the basis of previous studies (Bush et al., 1989; Delener, 2000; Gopal and Sanders, 1997; Jacobs et al., 2001; Lichtenstein et al., 1993; Malhotra, 1994). All items used five-point scales anchored at “strongly disagree” and “strongly agree,” though the midpoints were not labeled.

Zeithaml et al. (1996) broadly classify the construct of behavioral intentions as favorable or unfavorable intentions. When customers praise the firm, express preference for the company over others,

increase the volume of their purchases, or pay a price premium, they indicate favorable behavioral intentions. Furthermore, we define economic behavioral intentions as customer behaviors that have financial implications for the firm, such as repeat purchase behavior (Anderson and Mittal, 2000). In this study, we use five indicators to measure behavioral intentions (Table II).

To determine respondents' characterization as stayers, dissatisfied switchers, or satisfied switchers, our questionnaire contained statements designed to measure customers' switching behavior, which replicate portions of the instruments used by Ganesh et al. (2000). Respondents indicated whether, in the specific software category (e.g., anti-virus), the company (e.g., PC-cillin) they used was the first company from which they purchased (i.e., stayers) or if they had switched from another company (i.e., switchers). If a respondent chose the second option, he or she was asked to state whether his or her reasons for doing so were because of (1) overall dissatisfaction with the service of the previous software provider (dissatisfied switcher) or (2) reasons other than dissatisfaction (satisfied switcher).

## Analysis and results

### Reliability and construct validity

To investigate the reliability of the scales for the antipirating strategies and purchase intentions, we computed Cronbach's alphas. The alphas were, respectively, 0.75, 0.74, 0.76, and 0.73 for pricing, legal, communication, and product strategies and 0.77 for purchase intentions toward legal software. These values suggest acceptable internal consistency among the items and with their related constructs. To examine the factor structure of the above questionnaire, the principal-axis method of factor analysis, using the Varimax rotation procedure, was performed, and the number of factors was determined using eigenvalue ( $\lambda > 1$ ). Table II indicates that there were no cross loadings greater than 0.40, which reflects the same factors structure as proposed.

To test the construct validity of each scale, we conducted a confirmatory factor analysis (CFA) using LISREL 8.71; the  $\chi^2$  values of the CFA models of the

TABLE II  
Retention strategies and associated items

Factors	Items	F1	F2	F3	F4	F5	Alpha
Pricing strategy	The software would lower its price to customers	–	–	–	0.85 <sup>a</sup>	–	0.75
	The software would provide discounts to customers	–	–	–	0.89	–	
	The software would provide free gifts to customers	–	–	–	0.65	–	
Legal strategy	The software company would take legal actions against piracy behaviors	–	–	–	–	0.80	0.74
	The software company would investigate piracy behaviors	–	–	–	–	0.82	
	The software company would consult with the government to fight against piracy behaviors	–	–	–	–	0.69	
Communication strategy	The software would inform customers of the advantages of its legal version	–	–	0.80	–	–	0.76
	The software would educate customers that its legal version is more trustworthy	–	–	0.72	–	–	
	The software would educate consumers that its legal version is more reliable	–	–	0.70	–	–	
Product strategy	The software provides extending services to registered customers	–	0.65	–	–	–	.73
	The software would provide new product and updated services	–	0.52	–	–	–	
	The software would protect its products	–	0.83	–	–	–	
	The software would use special codes to prevent being pirated	–	0.78	–	–	–	
Behavioral intentions	I would buy this category of software from the company again	0.71	–	–	–	–	0.77
	I would recommend friends or relatives to buy this category of software from the company	0.73	–	–	–	–	
	I would pay more to buy this category of software from the company	0.70	–	–	–	–	
	I would buy this category of software from the company even if pirate software is cheaper	0.76	–	–	–	–	
	I would buy this category of software from the company because of the guarantee of services	0.60	–	–	–	–	

Note: <sup>a</sup> Only factor loadings greater than 0.40 are presented. The total variance extracted by these factors is 62.4%.

four strategies were 187.9 (d.f. = 59,  $p < 0.05$ ). In addition, the goodness-of-fit index (GFI) 0.94; adjusted goodness-of-fit index (AGFI) 0.91;

comparative fit index (CFI) 0.95 and standardized root mean residual (SRMR) 0.06 suggest an adequate fit of the model to the data.

TABLE III  
Results of hierarchical regression analyses

Step	Independent variable	Total $R^2$	$\Delta R^2$
1	Lower-pricing strategy and customer switching behaviors	0.074	0.074**
2	With lower-pricing strategy $\times$ customer switching behaviors	0.091	0.017**
1	Legal strategy and customer switching behaviors	0.073	0.073**
2	With legal strategy $\times$ customer switching behaviors	0.078	0.006
1	Communication strategy and customer switching behaviors	0.117	0.117**
2	With communication strategy $\times$ customer switching behaviors	0.128	0.011*
1	Product strategy and customer switching behaviors	0.144	0.144**
2	With product strategy $\times$ customer switching behaviors	0.146	0.002

\* $p < .10$ , \*\* $p < .05$ .

Churchill (1979) recommends convergent and discriminate validities should be examined for construct validity. Convergent validity is supported when the average variance extracted (AVE) between the constructs and their measures is greater than 0.50 (Fornell and Larcker, 1981) and the loading on the hypothesized construct is significant (Hibbard et al., 2001). We find that the AVE for the pricing, legal, communication, and product strategies range from 0.44 to 0.54, which approach or exceed the suggested level of 0.50. In addition, all the factor loadings are significant at  $p < 0.05$  ( $t$  values ranges from 10.9 to 20.6). Thus, the measures demonstrate adequate convergent validity. The AVE value also can be used to indicate discriminate validity (Fornell and Larcker, 1981) if the AVE for each factor and its measures is greater than the square of the estimated correlation between factors. Discrimination is evident because the largest shared variance among these four strategies is 0.38, less than the lowest AVE value (0.44) for each factor and its measures.

#### *Hypotheses testing*

To investigate our proposed hypotheses, we ran a regression model with purchase intention as the dependent variable and each type of retention strategy as a predictor of the overall sample. We calculated composite scores for each retention strategy and purchase intention by summing items. These composite (or simple factor) scores often are highly correlated with the factor scores obtained through the more complex least squares and regression methods

(Johnson and Wichern, 1992). To avoid issues related to high levels of multicollinearity among independent variables, which make it difficult to draw inferences about regression estimates, we determined whether the data fit the condition of multicollinearity prior to our regression. The variance inflation factor values ranged from 1.07 to 1.49, below the threshold of 10 suggested by Neter et al. (1996). Therefore, the effects of multicollinearity can be ignored for our study.

The regression results indicate that the price ( $B = 0.25$ ), legal ( $B = 0.15$ ), communication ( $B = 0.20$ ), and product ( $B = 0.27$ ) strategies, all have significantly positive impacts on purchase intentions ( $p < 0.05$ ) for the overall sample, in support of  $H_1$ – $H_4$ .

Furthermore, to provide managerial insights into implementing retention strategies, we divide customers into our three segments (stayers, dissatisfied switchers, and satisfied switchers) and examine whether strategies are effective across them. We use hierarchical regression analyses with purchase intention as the dependent variable and a specific retention strategy as the predictor again. In our hierarchical regression analyses, we mean centered all variables to reduce the risk of multicollinearity. Moderation is supported by significant changes in the multiple squared correlation coefficients ( $\Delta R^2$ ) when we include the interaction between an independent variable and the moderator. In this study, we code two dummy variables that provide qualitative information about consumer switching behavior.

In Table III, we report a series of hierarchical models. Moderation is supported for the pricing strategy ( $\Delta R^2 = 0.017$ ,  $p < 0.05$ ) and marginally supported for the communication strategy ( $\Delta R^2 = 0.011$ ,



TABLE IV  
Regression coefficient results

Types of consumers independent variables	Overall sample ( <i>n</i> = 554)	Stayers ( <i>n</i> = 218)	Dissatisfied switchers ( <i>n</i> = 161)	Satisfied switchers ( <i>n</i> = 175)
Lower-pricing strategy	0.25**	0.31**	0.33**	0.05
Legal strategy	0.15**	0.28**	0.15	-0.02
Communication strategy	0.20**	0.07	0.37**	0.20*
Product strategy	0.27**	0.28**	0.23**	0.31**
<i>R</i> <sup>2</sup>	0.23	0.24	0.27	0.26
<i>F</i> value	36.4	16.0	15.6	14.8

\**p* < .10, \*\**p* < .05.

*p* < 0.10), which indicates that their effectiveness differs marginally across stayers, dissatisfied switchers, and satisfied switchers. In addition, moderation is not supported for the legal and product strategies, which implies that  $H_{5b}$  is supported but  $H_{5d}$  is not.

To provide a close consideration of whether a specific retention strategy has a greater impact on the purchase intentions of a specific consumer switching segment, we offer results from three separate regressions with purchase intention as the dependent variable and each type of retention strategy as a predictor for the three consumer switching segments (Table IV).

Table IV seems to suggest that the pricing strategy is more important for stayers ( $B = 0.31$ ) and dissatisfied switchers ( $B = 0.33$ ) than for satisfied switchers ( $B = 0.05$ ). When we compare the unstandardized regression coefficients for the pricing strategy and customer purchase intentions for the three segments, we find that the coefficient is significantly greater for stayers and dissatisfied switchers than for satisfied switchers ( $p < 0.05$ ). Accordingly,  $H_{5a}$  is supported.

Table IV also suggests that the communication strategy is more important for dissatisfied switchers ( $B = 0.37$ ) than for satisfied switchers ( $B = 0.20$ ) or stayers ( $B = 0.07$ ). The unstandardized regression coefficients for the communication strategy and customer purchase intentions for three segments indicate that the coefficient is significantly greater for dissatisfied switchers than for stayers ( $p < 0.05$ ). However, the coefficient is not significantly greater

for dissatisfied switchers than for satisfied switchers ( $p > 0.10$ ). Accordingly,  $H_{5c}$  is partly supported.

## Discussion

### Conclusions

Piracy has become one of the worst problems confronting the software industry. In several countries, legal software represents only a small fraction of the total software in use, and the widespread use of counterfeit software remains one of the most significant threats to the growth of the worldwide software industry (Malhotra, 1994). All firms experiencing this nightmare must develop strategies to counteract piracy (Jacobs et al., 2001). In addition, customer loyalty strategies offer companies means to achieve lower customer turnover (Garbarino and Johnson, 1999) and better financial performance (Sheth and Parvatiyar, 1995). Therefore, both anti-piracy and customer loyalty strategies are critical for software companies that want to enhance customers' use of their legal software.

According to the literature, customer retention can be achieved in two ways: providing incentives to establish customers' true attitudinal and behavioral loyalty or building the switching costs of changing to an alternate provider (Patterson and Smith, 2003). We develop four retention strategies according to these two approaches: lower-pricing, legal, communication, and product. Our empirical results

suggest they all are useful for improving purchase intentions among customers.

In addition, Ganesh et al. (2000) reveal that customers who switch firms because of their dissatisfaction with a service or product differ significantly from other customer groups in terms of their satisfaction and loyalty behavior. Switchers likely received worse service and had experiences within the company that lowered their expectation in comparison with stayers (Grace and O’Cass, 2001). As Parasuraman et al. (1985) propose, service quality represents the difference between customer perceptions and expectations. Therefore, different consumer groups with divergent expectations may create different service evaluations, which may account for the behavioral differences among stayers, dissatisfied switchers, and satisfied switchers.

To examine whether the four retention strategies are effective across groups, we investigate the relationships between retention strategies and customer intentions to buy legal software. Our results indicate that the lower-pricing strategy is more useful for stayers and dissatisfied switchers than for satisfied switchers, and the communication strategy is more useful for dissatisfied switchers than for stayers. The legal and product strategies have similar impacts on purchase intentions across the three segments.

Of the four retention strategies, product strategy is the only one that provides both benefits and switching barriers. If a software publisher uses special codes or other technologies to prevent copies of its product, customers generally cannot duplicate it unless they know how to crack the codes. Therefore, this strategy seems useful for the majority customers of because they are not good at overcoming the protections, regardless of whether they are stayers, dissatisfied switchers, or satisfied switchers.

#### *Managerial implications*

Managerially, several of our findings have important applications for software companies. First, companies must understand the nature of their retention strategy. According to the literature, customer retention decisions toward a particular company are guided by desire – (e.g., benefits) and constraint – (e.g., switching barriers) based determinants (Bansal et al.,

2004; Benapudi and Berry, 1997; Burnham et al., 2003; Jones et al., 2000; Tsai et al., 2006). Of our four generic retention strategies, lower-pricing and communication strategies, which provide additional benefits to customers, represent desire-based determinants, whereas the legal strategy can be viewed as a constraint-based determinant. Finally, a product strategy, which provides both benefits and barriers, contains both desire- and constraint-based determinants. All four retention strategies influence customer purchase intentions toward legal software.

Second, companies should consider which retention strategies lead to increased customer purchase intentions across the different switching segments. Our results suggest that software companies face all three distinct customer switching segments and that these groups differ in terms of the effects of customer retention strategies. As we show in Tables III and IV, the lower-pricing strategy (carrot) is more useful for stayers and dissatisfied switchers than for satisfied switchers. The legal strategy (stick) seems useful for only stayers; however, there are no significant differences across stayers, dissatisfied switchers, and satisfied switchers. The communication strategy (carrot) is more useful for dissatisfied switchers than stayers. Finally, the product strategy (carrot and stick) is the only one that is useful for improving customer purchase intentions across all three segments. If software marketers intend to improve their relationships with customers, they must realize the effects of their retention strategies across different customer segments.

Third, software companies must develop marketing investment programs for the different switching segments. The careful development of a relationship investment strategy can make a company to build strong and enduring ties with its customers (Turnbull and Wilson, 1989), and marketing budget allocations can be planned according to the results of this study. A software company first might determine which of the three customer groups warrants strategic investment. In line with our findings and previous literature, satisfied switchers should be the last retention priority because they are less loyal to the current company. Furthermore, a software company should allocate its marketing budget carefully; as Table IV suggests, it should invest in a product strategy, which is useful

across all customer switching segments. In addition to a product strategy, companies should invest in the lower-pricing strategy, because it is useful for both stayers and dissatisfied switchers.

#### *Limitations and future research directions*

We recognize two main limitations of our study. The first is the problem of external validity, specifically, the ability to generalize our results outside Taiwan. However, because of the similarity in their cultural origins, we believe these results provide generalizable managerial implications for Asian countries. The second limitation pertains to our inclusion of only software firms; therefore, a margin of error may emerge when our conclusions are generalized to other industries.

However, additional research might take some of the following directions. First, more studies should examine our hypotheses in different industries. It also would be informative to test our results in a sample with a broader customer base. Second, research might consider other moderators, such as low/high relational customers, that may influence the relationship between relational bonds and customer commitment. For example, some authors suggest organizations should assign their customers to a position on the continuum of transactional-collaborative exchanges and then apply transactional or relational marketing on the basis of the customer's relational orientation (Anderson and Narus, 1991; Garbarino and Johnson, 1999). Customers with different relational orientations may require different approaches to build their trust, commitment, and loyalty. Thus, before applying retention strategies, businesses might segment customers according to their relational orientation. Third, Hofstede (1980) reveals four dimensions of culture: power distance, uncertainty avoidance, individualism/collectivism, and masculinity/femininity; and these cultural dimensions have impacts on ethical issues (Vitell et al., 1993). For example, in a collectivistic society, in which sharing resources with others is regarded as a virtue, software is naturally considered a resource that can be shared and, in effect, used to increase the overall welfare of the group

(Shin et al., 2004). Thus, further research might extend this study to individualistic cultures and compare the results with those of this study.

#### **References**

- Albers-Miller, N. D.: 1999, 'Consumer Misbehavior: Why People Buy Illicit Goods', *The Journal of Consumer Marketing* **16**(3), 273–287.
- Anderson, E. W. and V. Mittal: 2000, 'Strengthening the Satisfaction-Profit Chain', *Journal of Service Research* **32**(2), 107–120.
- Anderson, J. C. and J. A. Narus: 1991, 'Partnering as a Focused Market Strategy', *California Management Review* **33**(3), 95–113.
- Arnold, M. J. and K. E. Reynolds: 2003, 'Hedonic Shopping Motivations', *Journal of Retailing* **79**(2), 77–95.
- Bansal, H. S., P. G. Irving and S. F. Taylor: 2004, 'A Three-Component Model of Customer Commitment to Service Providers', *Journal of the Academy of Marketing Science* **32**(3), 234–250.
- Banerjee, D., A. M. Khalid and J. E. Sturm: 2005, 'Socio-Economic Development and Software Piracy: An Empirical Assessment', *Applied Economics* **37**(18), 2091–2097.
- Bendapudi, Neeli and L. Berry Leonard: 1997, 'Customers' Motivations for Maintaining Relationships with Service Providers', *Journal of Retailing* **73**(1), 15–37.
- Burnham, T. A., J. K. Frels and V. Mahajan: 2003, 'Consumer Switching Costs: A Typology, Antecedents, and Consequences', *Journal of the Academy of Marketing Science* **31**(2), 109–127.
- Bush, R. F., P. H. Bloch and S. Dawson: 1989, 'Remedies for Product Counterfeiting', *Business Horizons* **32**(1), 59–65.
- Cadotte, E. R., R. B. Woodruff and R. L. Jenkins: 1987, 'Expectations and Norms in Models of Consumer Satisfaction', *Journal of Marketing Research* **24**(3), 305–314.
- Chiu, H. C., Y. C. Hsieh, Y. C. Li and M. Lee: 2005, 'Relationship Marketing and Consumer Switching Behavior', *Journal of Business Research* **58**(12), 1681–1689.
- Churchill, G. A., Jr.: 1979, 'A Paradigm for Developing Better Measures of Marketing Constructs', *Journal of Marketing Research* **16**(1), 64–73.
- Cole, C. A.: 1989, 'Deterrence and Consumer Fraud', *Journal of Retailing* **65**(1), 107–120.
- Crosby, L. A. and N. Stephens: 1987, 'Effects of Relationship Marketing on Satisfaction, Retention, and

- Prices in the Life Insurance Industry', *Journal of Marketing Research* **24**(4), 404–412.
- d'Astous, A., F. Colbert and D. Montpetit: 2005, 'Music Piracy on the Web—How Effective are Anti-Piracy Arguments? Evidence from the Theory of Planned Behaviour', *Journal of Consumer Policy* **28**(3), 289–310.
- Delener, N.: 2000, 'International Counterfeit Marketing: Success without Risk', *Review of Business* **21**(March 22), 16–20.
- Feldman, M. P.: 1977, *Criminal Behaviour: A Psychological Analysis* (John Wiley & Sons, London).
- Fornell, C. and D. F. Larcker: 1981, 'Evaluating Structural Equation Models with Unobservable Variables and Measurement Error', *Journal of Marketing Research* **18**(1), 39–50.
- Fraedrich, J. P. and O. C. Ferrell: 1992, 'The Impact of Perceived Risk and Moral Philosophy Type on Ethical Decision Making in Business Organizations', *Journal of Business Research* **24**(4), 283–295.
- Ganesh, J., M. J. Arnold and K. E. Reynolds: 2000, 'Understanding the Customer Base of Service Providers: An Examination of the Differences Between Switchers and Stayers', *Journal of Marketing* **64**(3), 65–87.
- Garbarino, E. and M. S. Johnson: 1999, 'The Different Roles of Satisfaction, Trust, and Commitment in Customer Relationships', *Journal of Marketing* **63**(2), 70–87.
- Gopal, R. D. and G. L. Sanders: 1997, 'Preventive and Deterrent Controls for Software Piracy', *Journal of Management Information System* **13**(4), 29–47.
- Gopal, R. D., G. L. Sanders, S. Bhattacharjee, M. Agrawal and S. C. Wagner: 2004, 'A Behavioral Model of Digital Music Piracy', *Journal of Organizational Computing and Electronic Commerce* **14**(2), 89–106.
- Grace, D. and A. O'Casey: 2001, 'Attributions of Service Switching: A Study of Consumers' and Providers' Perceptions of Child-Care Service Delivery', *The Journal of Services Marketing* **15**(4/5), 300–321.
- Gwinner, K. P., D. D. Gremler and M. J. Bitner: 1998, 'Relational Benefits in Service Industries: The Customer's Perspective', *Journal of the Academy of Marketing Science* **26**(2), 101–114.
- Harvey, M. G.: 1987, 'Industrial Product Counterfeiting: Problem and Proposed Solutions', *The Journal of Business & Industrial Marketing* **2**(4), 5–13.
- Harvey, M. G. and I. A. Ronkainen: 1985, 'International Counterfeiters: Marketing Success without the Cost and the Risk', *Columbia Journal of World Business* **20**(3), 37–45.
- Hibbard, J. D., N. Kumar and L. W. Stern: 2001, 'Examining the Impact of Destructive Acts in Marketing Channel Relationships', *Journal of Marketing Research* **38**(1), 45–61.
- Hofstede, G.: 1980, *Culture's Consequences: International Differences in Work-Related Values* (Sage, Beverly Hills, CA).
- Jacobs, L., A. C. Samli and T. Jedlik: 2001, 'The Nightmare of International Product Piracy', *Industrial Marketing Management* **30**(6), 499–509.
- Johnson, R. A. and D. W. Wichern: 1992, *Applied Multivariate Statistical Analysis* 3 (Prentice-Hall, Englewood Cliffs, NJ).
- Jones, M. A., D. L. Mothersbaugh and S. E. Beatty: 2000, 'Switching Barriers and Repurchase Intentions in Services', *Journal of Retailing* **76**(2), 259–274.
- Katz, A.: 2005, 'A Network Effects Perspective on Software Piracy', *University of Toronto Law Journal* **55**(2), 155–216.
- Keaveney, S. M. and M. Parthasarathy: 2001, 'Customer Switching Behavior in Online Services: An Exploratory Study of the Role of Selected Attitudinal, Behavioral, and Demographic Factors', *Journal of the Academy of Marketing Science* **29**(4), 374–390.
- Kim, T. K., D. J. Hayes and A. Hallam: 1992, 'Technology Adoption under Price Uncertainty', *Journal of Development Economics* **38**(1), 245–253.
- Lichtenstein, D. R., N. M. Ridgway and R. G. Netemeyer: 1993, 'Price Perceptions and Consumer Shopping Behavior: A Field Study', *Journal of Marketing Research* **30**(2), 234–245.
- Malhotra, Y.: 1994, 'Controlling Copyright Infringements of Intellectual Property: The Case of Computer Software—Part One', *Journal of Systems Management* **45**(6), 32–35.
- Maslow, A. H.: 1970, *Motivation and Personality* 2 (Harper and Row, New York).
- Mitchell, V. W.: 1992, 'Understanding Consumer's Behaviour: Can Perceived Risk Theory Help?', *Management Decision* **30**(3), 26–31.
- Mohr, J., S. Sengupta and S. Slater: 2005, *Marketing of High-Technology Products and Innovations* 2 (Prentice Hall, Upper Saddle River, NJ).
- Neter, J., M. H. Kutner, C. J. Nachtsheim and W. Wasserman: 1996, *Applied Linear Statistical Models* 4 (McGraw-Hill, Boston).
- Nia, A. and J. L. Zaichkowsky: 2000, 'Do Counterfeits Devalue the Ownership of Luxury Brands?', *The Journal of Product and Brand* **9**(7), 485–497.
- Oliver, R. L.: 1980, 'A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions', *Journal of Marketing Research* **17**(4), 460–469.
- Oliver, R. L., R. T. Rust and S. Varki: 1997, 'Customer Delight: Foundations, Findings, and Managerial Insight', *Journal of Retailing* **73**(3), 311–336.
- Parasuraman, A., V. A. Zeithaml and L. L. Berry: 1985, 'A Conceptual Model of Service Quality and its

- Implications for Future Research', *Journal of Marketing* **49**(3), 41–50.
- Patterson, P. G. and T. Smith: 2003, 'A Cross-Cultural Study of Switching Barriers and Propensity to Stay with Service Providers', *Journal of Retailing* **79**(2), 107–120.
- Peace, A. G., D. F. Galletta and J. Y. L. Thong: 2003, 'Software Piracy in the Workplace: A Model and Empirical Test', *Journal of Management Information Systems* **20**(1), 153–177.
- Peltier, J. W. and J. Westfall: 2000, 'Dissecting the HMO-Benefits Managers Relationship: What to Measure and Why', *Marketing Health Service* **20**(2), 4–13.
- Pitts, R. E., J. K. Wong and J. D. Whalen: 1991, 'Consumers' Evaluative Structures in Two Ethical Situations: A Means-End Approach', *Journal of Business Research* **22**(2), 119–130.
- Roos, I., B. Edvardsson and A. Gustafsson: 2004, 'Customer Switching Patterns in Competitive and Non-competitive Service Industries', *Journal of Service Research* **6**(3), 256–271.
- Sheth, J. N. and A. Parvatiyar: 1995, 'Relationship Marketing in Consumer Markets: Antecedents and Consequences', *Journal of the Academy of Marketing Science* **23**(4), 255–271.
- Shin, S. K., R. D. Gopal, G. L. Sanders and A. B. Whinston: 2004, 'Global Software Piracy Revisited', *Communications of the ACM* **47**(1), 103–107.
- Shultz, C. J. and B. Saporito: 1996, 'Protecting Intellectual Property Strategies and Recommendations to Deter Counterfeiting and Brand Piracy in Global Markets', *The Columbia Journal of World Business* **31**(1), 18–27.
- Sims, R. R., H. K. Cheng and H. Teegen: 1996, 'Toward a Profile of Student Software Pirates', *Journal of Business Ethics* **15**(8), 839–849.
- Straub, D. W.: 1990, 'Effective is Security: An Empirical Study', *Information Systems Research* **1**(3), 255–276.
- Szymanski, D. M. and D. H. Henard: 2001, 'Customer Satisfaction: A Meta-Analysis of Empirical Evidence', *Journal of the Academy of Marketing Science* **29**(1), 16–35.
- Tan, R.: 2002, 'Understanding Consumer Ethical Decision Making with Respect to Purchase of Pirated Software', *The Journal of Consumer Marketing* **12**(2/3), 96–111.
- Taylor, G. S. and J. P. Shim: 1993, 'A Comparative Examination of Attitudes Toward Software Piracy Among Business Professors and Executives', *Human Relations* **46**(4), 419–423.
- Tellis, G. J. and G. Gaeth: 1990, 'Best Value, Price-seeking, and Price Aversion: The Impact of Information and Learning on Consumer Choices', *Journal of Marketing* **54**(2), 34–45.
- Tsai, H. T., H. C. Huang, Y. L. Jaw and W. K. Chen: 2006, 'Why On-line Customers Remain with a Particular E-retailer: An Integrative Model and Empirical Evidence', *Psychology and Marketing* **23**(5), 447–464.
- Turnbull, P. W. and D. T. Wilson: 1989, 'Developing and Protecting Profitable Customer Relationships', *Industrial Marketing Management* **18**(3), 233–238.
- Vitell, S. J., S. L. Nwachukwu and J. H. Barnes: 1993, 'The Effects of Culture on Ethical Decision-Making: An Application of Hofstede's Typology', *Journal of Business Ethics* **12**(10), 753–760.
- Wagner, S. C. and L. G. Sanders: 2001, 'Considerations in Ethical Decision-Making and Software Piracy', *The Journal of Business Ethics* **29**(1/2), 161–167.
- Wangenheim, F. and T. Bayon: 2004, 'Satisfaction, Loyalty and Word of Mouth Within the Customer Base of a Utility Provider: Differences between Stayers, Switchers and Referral Switchers', *Journal of Consumer Behaviour* **3**(3), 211–220.
- Wiegner, K. K.: 2004, 'Pirates Versus Piranhas', *Forbes* **132**(4), 35–36.
- Zeithaml, V. A., L. L. Berry and A. Parasuraman: 1996, 'The Behavioral Consequences of Service Quality', *Journal of Marketing* **60**(2), 31–46.

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