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RESEARCH ARTICLE

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Research on Satisfaction Recovery from Service Failure Due to Attitude Defect and Unfair Price: A Dynamic and Longitudinal Evaluation Model Based on Customer Win-Back Management

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Abstract Customer win-back is a cognitive process of satisfaction changing from a low level to a high level with service recovery strategies as the stimulus. Because prior research tends to view service recovery strategies as a static antecedent, it is difficult to analyze and observe how the recovery strategies affect satisfaction and repurchase intention dynamically. Moreover, not enough attention has been directed to the relationship between reasons of customer loss and recovery strategies. This research conducted a field experiment involving a

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2×2 between-subjects design (defects of service attitude and unfair price × tangible recovery and intangible recovery strategies). From a longitudinal and dynamic perspective, this study has produced the following key results: First, there are significant differences in satisfaction and purchase intention between the four groups categorized by specific reasons of customer loss. Second, recovery strategies may have non-linear effects on customer's satisfaction. Lastly, based on the prospect theory and disappointment theory, we discuss important managerial implications of the function curves fitted between customer satisfactory (before customer loss and after implementation of customer win-back strategy) and purchase intention.

Keywords win-back management, service attitude, unfair price, satisfaction recovery

1 Introduction

In 1997, United Parcel Service (UPS) suffered a serious stoppage in delivery for 15 days, which caused one and a half million customers to switch to FedEx. This service failure nearly knocked UPS out of the express delivery market permanently. However, one year after that disastrous accident, the profit of UPS surprisingly increased by 87%. A series of recovery strategies adopted by UPS not only regained the lost trust from its customers, but also enabled its profit to increase dramatically (Griffin and Lowenstein, 2001). On the contrary, if a company loses customers due to service failure or unfair price and does not take effective measures in time, the consequences might be more than customer loss: an angry customer might become your "negative advertiser" or "disseminator of bad information" (Hu and Yang, 2006). The extant literature has shown that almost 50% of marketing managers failed to pay close attention to their annual churn rate. As a result, these managers are unaware of the substantial loss to their companies brought forth by customer loss. Furthermore, it has been generally believed that it is almost impossible to regain a "lost customer" (Griffin and Lowenstein, 2001). Most recent studies have indicated that, not only a broken transaction relationship may be re-constructed, but also the return on investment in a lost customer is far more efficient than that in a new customer. Therefore, how to win back lost customers in an efficient way has been a focus of current research (Tokman, Davis and Lemon, 2007; Tang, Jia and Zhou, 2007).

In marketing practices, a large number of companies in China have spent great efforts and financial resources to customers loss caused by service failure or unfair price, hoping to restore customer satisfaction (or even improve it) after service failure. However, the actual outcome usually runs counter to expectation:

Most of the efforts to rebuild customer relationship only lead to waste of more resourse and a loss of the best time to win back lost customers. Why is that? Recent studies have shown that the inability to effectively identify the causes of customer loss and to take appropriate measures is the main reason for failure in customer win-back (Tang et al., 2007; Smith, Bolton and Wagner, 1999). Chang and Hsiao (2008) confirmed that appropriate service recovery is critical to correct service failure and diminish the number of customers lost. The focus of existing studies is either on the categorization of reasons of customer loss (Keaveney, 1995; Griffin and Lowenstein, 2001; Fu, Feng and Yu, 2005), or on customer complaint and timely service recovery (McCollough and Rerry, 2000; Zheng and Fan, 2007). Smith, Bolton and Wanger (1999) recommended adjusting recovery strategies according to types of service failure, and further classified service failure into procedural fairness, result fairness and interactive fairness, etc.

This research draws upon prior research in the following ways. First, it adopts the classification criterion for causes of customer loss defined by Griffin and Lowenstein, and regards defect service and unfair price as the primary causes for service failure. Second, although the study of by Smith, Bolton and Wanger (1999) studied the positive or negative influences of relevant variables of customer satisfaction, they did not explain how satisfaction of customers after service recovery would change or the scope of the change. As a result, managers are rarely aware of the limitations of the varied influence of different recovery strategies on customer satisfaction and repurchase intention. Consequently, managers would wishfully believe that as long as they take "corresponding measures" to specific types of service failure, everything will be just fine. Third, Smith et al. (1999) mainly concentrated on complaint recovery after service failure. However, lost customers and complaining customers are essentially different. Fourth, almost importantly, the extant research has viewed recovery strategy as a static antecedent of customer win-back. Therefore, it is unable to analyze and observe how recovery strategies affect customer satisfaction and repurchase intention dynamically.

Based on the above literature review, this research attempts to make a dynamic and longitudinal comparison between changes in customer satisfaction and purchase intention at different time points, and to describe with a curve of changes scope of satisfaction and purchase intention after tangible and psychological recovery. Our aim is to discover particular phenomena in actual managerial practice. Customer win-back implies the cognitive process of satisfaction changing from a low level to a high level with service recovery strategies as the stimulus (Thomas, 2004). This research adopts a dynamic and longitudinal experimental research method to compare absolute magnitudes of satisfaction and purchase intention of customers lost due to different reasons and

under different recovery strategies. Moreover, the authors attempt to fit the curve functions of customer satisfaction and purchase intention to verify the viewpoint that the influences of recovery strategies on customer satisfaction might be non-linear. This research uses the prospect theory and disappointment theory to demonstrate the important managerial implication of the curve fitting functions of customer satisfactory (before customer loss and after implementation of customer win-back strategy) and customer's purchase intention.

2 Literature Review, Model and Hypotheses Development

2.1 Variable Definition

(1) Customer win-back implies a cognitive process of satisfaction changing from a low level to a high level (Thomas, Lattberg and Fox, 2004; Tang et al., 2007).

(2) Loss of customers means that customers have the intention to cease transaction with current service providers (Ping, 1995) and put this intention into action (Tähtinen and Halinen-Kail, 1997).

(3) Tangible recovery can be attributed to the economic dimension in social transaction, with its primary forms of compensation, free offer of marketable coupons, presents and discount, etc. (Hart, Heskett and Sasser, 1990). Tangible recovery strategy here refers to "discount."

(4) Psychological recovery can be attributed to the perceptual dimension in social transaction, with its primary forms of communication, apology and solution of issues, etc. (Hart et al., 1990). Psychological recovery strategy here refers to "explanation and apology" by senior managers.

(5) Customer satisfaction refers to accumulative and comprehensive evaluation of customers in their long-term contact with an enterprise (Homburg, Koschate and Hoyer, 2005).

(6) Purchase intention refers to degree of intention of customers to purchase products or service from a company in the future (Maxham and Netemeyer, 2002).

(7) Service failure refers to impolite, impatient or untimely service perceived by customers (Larsen and Bastinsen, 1991).

(8) Perception of unfair price refers to emotional response of customers' perception of irrationality and unacceptability after comparison of price (Xia, Monroe and Cox, 2004).

(9) Service expectation refers to the level of customers' expectation for an enterprise to offer products and service to satisfy their needs (Parasuraman, Zeithaml and Berry, 1991).

(10) Service recovery expectation means that a customer believes the company will take appropriate compensation action after service failure

(Zeithaml, Berry and Parasuraman, 1996).

2.2 Literature Review and Model Development

Keaveney (1995) classified customer-lost reasons into service failure, unfair price, core service failure, convenience issue, failed response, switch to competitors, moral issue, unwilling switch, and other issues related with service. Approximately 30% of customers regard unfair price as the primary reason of customer loss, 33% of customers regard core service failure as the major reason and 9% of customers regard service failure as the direct reason. Griffin and Lowenstein (2001) further categorized reasons of customer loss into five types: intentionally pushed away, unintentionally pushed away, pulled away, bought away, and moved away, in which the unintentionally pushed-away customers and pulled-away customers are involved in service and price failure. Researchers in China, such as Fu (2005) also argued that an important reason for customers' switching to other service providers is core service failure, service failure or price issue. The above studies have not only classified reasons of customer loss, but also shown that service and unfair price issues are the primary reasons. However, as service attitude and perception of unfair price are primary causes underlying the conflicts among transaction parties, we are going to conduct a study on service recovery from the perspectives of service attitude and unfair price.

Hart et al. (1990) found that appropriate service recovery might change irritated and disappointed customers into loyal customers, and might even receive better evaluation than mistake-free service. In addition, it is believed that complainants after service failure and appropriate recovery have higher repurchase intention and loyalty than customers who are satisfied at the very beginning (Gilly, 1987; Zeithaml, 1996). These phenomena are identified as "recovery paradox" in the academic circle. In his study on Banking, Michel (2001) proved that the average satisfaction of customers without encounter of service failure is 1.50 (1 = quite satisfied), and that of customers with encounter of service failure and recovery is increased by 1.22. This finding is consistent with the hypothesis of "recovery paradox." Maxham and Netemeyer (2002) also found that effective recovery strategies could indeed support the "recovery paradox" in service failure for once. However, in the second service failure, customer's overall satisfaction, word of mouth and repurchase intention would be lower than evaluation before service failure. Some research explained the rationality of "recovery paradox" respectively in accordance with the expectation theory, contrast theory and attribution theory. Anderson (1973) pointed out that, if a customer's recovery is higher than his/her expectation, then under the magnified effect, this could eliminate his/her displeasure caused by previous

service failure, resulting in the so-called "recovery paradox." According to Smith et al. (1999), after service failure, customers are usually involved in high emotional reaction (such as impatience and irritation), and even pay more attention to behavior of service providers, service recovery therefore has a profound effect on customers' evaluation. This conclusion sufficiently explains why appropriate recovery strategies can bring originally dissatisfied customers back to high satisfaction and enhance their purchase intention in the future (Goodwin and Ross, 1992), and why a poor recovery may result in stronger dissatisfaction than service failure per se (Maxham III, 2001). From the perspective of the attribution theory, service failure can be viewed as a constraint factor, whereas appropriate service recovery can be viewed as a stimulative factor. When encountered with both constraint factors and stimulative factors, customers tend to give more priority to stimulative factors. However, some studies have not supported the hypothesis of "recovery paradox." For instance, McCollough et al. (2000) discovered in their research on Aircraft Industry that, satisfaction of customers experiencing service failure would be lower than that of customers without experience in service failure. By context simulative means, Maxham III (2001) found that even in high-quality service recovery group, customers' satisfaction, purchase intention, and positive word-of-mouth would be lower than that of before service failure. Findings of Andreassen (2001) also indicated that, even if customers are satisfied with recovery strategies, their repurchase intention and attitude towards service providers would not be as high as when they are satisfied at the very beginning.

Therefore, as for customer loss, no consensus has been reached on "recovery" and "giving up of recovery." This research explores the above dispute by means of collecting more data. In addition, existing studies have shown that price-sensitive consumers are more likely to be involved in conflicts of price than consumers focusing more on emotional experience. On the contrary, consumers focusing on emotional experience pay more attention to service attitude, so they are more likely to get involved into conflicts with service providers in terms of service quality (Tang, Zhou and Chen, 2006). Tax (1998) also found that different recovery strategies do have an obvious effect on satisfaction and behaviors of customers involved in service or price issues. However, as mentioned earlier, most of the previous studies have ignored reasons of customer loss, and viewed recovery strategies as static antecedents for customer win-back, which left many phenomena unexplained. Effective recovery strategies should be a changing cognitive process of satisfaction and purchase intention. During the process, consumers in the horizontal direction adapt themselves to horizontal changes, which is likely to demonstrate varied influences of satisfaction and dissatisfaction on purchase intention in the process of customer win-back. Therefore, this study is probably to correct the biased conclusion drawn by

Smith, Bolton and Wanger (1999).

2.3 Development of a Dynamic and Longitudinal Evaluation Model about Service Failure or Unfair Price and Relevant Hypotheses

According to the previous literature review, the authors try to develop a dynamic and longitudinal evaluation model based on reasons of customer loss, recovery strategies, customer satisfaction and repurchase intention. In doing so, they wish to demonstrate changes in satisfaction and repurchase intention among lost customers due to service failure or unfair price before and after the implementation of certain recovery strategies. The purpose is to bring more profound insight into the dynamic and longitudinal process of customer satisfaction and to reveal internal formation mechanism of strong (weak) repurchase intention.

Oliver (1980) established an earliest dynamic model of the relationship between purchase intention and customer satisfaction: $I_t = f(I_{t-1}, SAT, ATT_t)$, in which intention is determined by three aspects, namely, 1) previous intention; 2) satisfaction level perceived in brand consumption; 3) current attitude level. According to Labarbera and Mazursky (1983), a high satisfaction level has a positive effect on repurchase intention of consumers, whereas dissatisfaction among consumers would bring about a negative influence on the brand, leading to a strong intention to switch to other brands. Based on the pioneering study of Oliver (1980), Labarbera and Mazursky established a cognitive model on the customer satisfaction/dissatisfaction on repurchase intention: $P_{t+1} = f(I_{t-1}, SAT, I_t)$. In the model, consumer behavior (P_{t+1}) is determined by three aspects, namely, 1) previous intention; 2) satisfaction level perceived in brand consumption; 3) current intention. This research aims to extend the above two models, as is shown in Fig. 1.

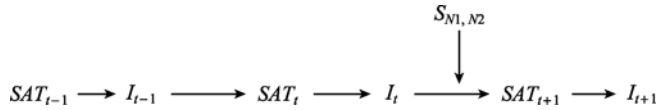

Fig. 1 A Dynamic and Longitudinal Evaluation Model on Service Failure or Unfair Price

The model can be separated dynamically into three periods of P_{t-1}, P_t and P_{t+1}, that is, the period before customer loss, the period of loss and the period of implementation of win-back strategy. SAT_{t-1} and I_{t-1} represent satisfaction and purchase intention of customers before encounter with service failure or unfair price (P_{t-1}), respectively. SAT_t and I_t represent satisfaction and purchase intention of customers during the period of customer loss when encountered with service failure or unfair price (P_t), respectively. SAT_{t+1} & I_{t+1} represent satisfaction and

repurchase intention of customers after implementation of recovery strategies (P_{t+1}), respectively. There are mainly two recovery strategies: S_{N1} represents explanation and apology by senior managers and S_{N2}, represents offer of discount. The primary flow of process is as follows: the first period (viz. P_{t-1} before customer loss), namely, satisfaction (SAT_{t-1}) and purchase intention (I_{t-1}) of customers' consumption experience in the past and at present; the second period (viz. P_t of customer loss), namely, generation of conflicts which leads to customers loss. During this period, satisfaction and purchase intention of customers both drop rapidly until they are finally lost; the third period (P_{t+1} of implementing win-back recovery), namely, service providers adopt win-back recovery strategy which includes explanation and apology (S_{N1}) by senior managers and offer of discount (S_{N2}). If the recovery strategy is not appropriate, then customer dissatisfaction continues to grow and purchase intention continues to fall accordingly, as a result, the recovery strategy will produce a negative effect. Instead, if the recovery strategy can perfectly cater to recovery expectation of customers lost, then the customer satisfaction level would stop dropping and goes upward instead. So does the purchase intention. A simple path analysis of the above rationale is shown in Fig. 2.

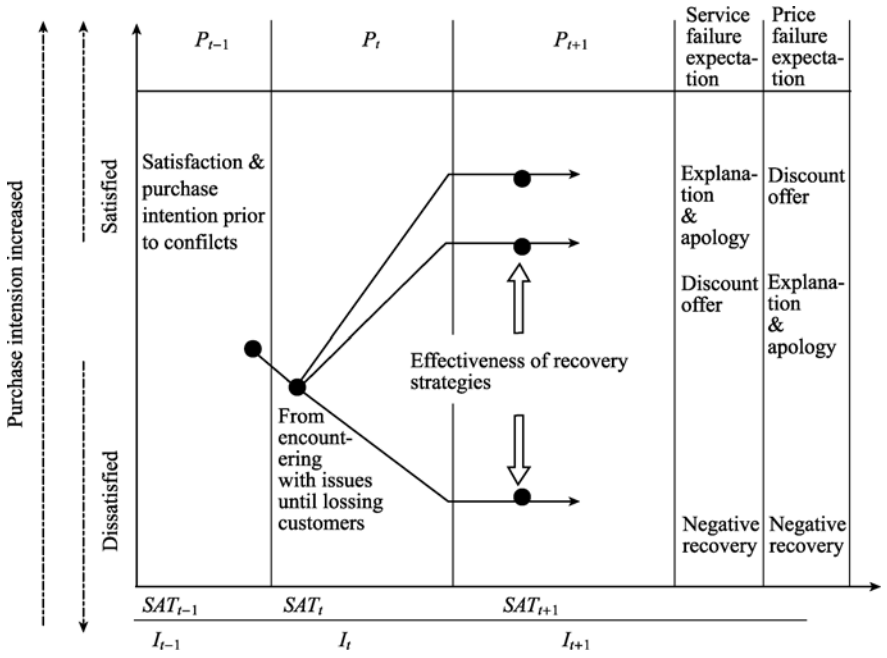

Fig. 2 Framework of Simple Path Analysis

(1) $I_t = f_1(SAT_t, I_{t-1}, SAT_{t-1})$.

Intention of customers lost (I_t) is determined by three aspects, namely, 1)

accumulative satisfaction (SAT_{t-1}) of customers before encounter with service failure or unfair price; 2) purchase intention (I_{t-1}) of customers before encounter with service failure or unfair price; 3) satisfaction (SAT_t) of customers during the period of loss.

(2) $SAT_{t+1} = f_2(I_t, S_N)$.

Satisfaction (SAT_{t+1}) of customers after recovery strategies is determined by two factors, namely, 1) purchase intention during the period of loss and 2) recovery strategies.

(3) $I_{t+1} = f_3(SAT_{t+1})$.

Repurchase intention (I_{t+1}) of customers is determined by customer satisfaction (SAT_{t+1}) after implementation of recovery strategies.

Based on the above literature analysis and logic deduction, the following hypotheses are proposed:

H1 During the period P_t, no obvious discrepancy exists between purchase intention of customers in the positive recovery group and in the negative recovery group. During the period P_{t+1}, satisfaction and purchase intention of customers in the positive recovery group is significantly higher than that of in the negative recovery group.

In other words, I_t/positive recovery group ≈ I_t/negative recovery group; SAT_{t+1}/ positive recovery group > SAT_{t+1}/ negative recovery group; I_{t+1}/ positive recovery group > I_{t+1}/ negative recovery group

It should be noticed that, in the above equations, negative recovery group refers to a sample population ($I_{t+1} \leqslant I_t$) in which recovery strategies lead to unchanged or descending purchase intention. Normally, these customers have no expectation or have excessive expectation on recovery, because they account for a low proportion (approximately 11%) in the overall sample, and can be neglected. Hence, they are not the focus of our observation. Positive recovery group refers to a sample population ($I_{t+1} > I_t$) in which recovery strategies lead to ascending purchase intention. However, different combinations of recovery strategies and reasons of customer loss result in different customer attitudes. Therefore, this research focuses more on the comparison of this discrepancy (see Fig. 2) to obtain an optimal combination and provide instructive managerial suggestions.

H2 In the positive recovery group, if customer loss is caused by service failure, customer satisfaction and purchase intention in the case of explanation and apology made by senior managers is obviously higher than that of in the case of discount offer.

In other words: $SAT_{t+1}/S_{N1} > SAT_{t+1}/S_{N2}$; $I_{t+1}/S_{N1} > I_{t+1}/S_{N2}$

H3 In the positive recovery group, if customer loss is caused by unfair price, customer satisfaction and purchase intention in the case of discount offer is

obviously higher than that of in the case of explanation and apology made by senior managers.

In other words: $SAT_{t+1}/S_{N2} > SAT_{t+1}/S_{N1}$; $I_{t+1}/S_{N2} > I_{t+1}/S_{N1}$

H4 In the positive recovery group, (a) customer satisfaction and purchase intention in the case of explanation and apology made by senior managers is significantly higher than that of before they encounter with service failure or unfair price. (b) likewise, customer satisfaction and purchase intention in the case of discount offer is significantly higher than that before their encounter with service failure or unfair price.

In other words, (a) $SAT_{t+1}/S_{N1} > SAT_{t-1}/S_{N1}$; $I_{t+1}/S_{N1} > I_{t-1}/S_{N1}$; (b) $SAT_{t+1}/S_{N2} > SAT_{t-1}/S_{N2}$; $I_{t+1}/S_{N2} > I_{t-1}/S_{N2}$

2.4 Fitting of Function Curve between Satisfaction and Purchase Intention of Customers Encountered with Service Failure or Unfair Price

Among the extant study focusing on the relationship between customer satisfaction and purchase intention, a majority of researchers are supportive of the assumption that customer satisfaction has a positive effect on purchase intention (e.g., Anderson and Sullivan, 1993; Anderson et al., 1994; Patterson et al., 1997). Babu et al.'s finding (2007) also supported the above assumption in their study on customer complaint in tourism. However, there are still some scholars holding different views. For instance, Brandr (1997) argued that customer satisfaction does not necessarily reflect customer loyalty or could bring profits to a company. Reichheld (1995) claimed that customer satisfaction could not help make an accurate prediction on customers' prospective purchase intention. There are also disputes about the (non)linear relationship between customer satisfaction and purchase intention. Some researchers argued that the relationship between the two is linear (e.g., Jones and Sasser, 1995; Patterson et al., 1997). Others, such as Labarbera and Mazusky (1993) held that the relationship is non-linear. The two authors established accordingly a dynamic and longitudinal evaluation model based on customer satisfaction. Their findings show that previous purchase experience of customers would generate a referred satisfaction point. If products or services are higher than customer expectation, then their purchase intention and behavior would be strengthened with increased satisfaction, presenting a trend of marginal decline. In contrast, if products or services were lower than their expectation, then their switching behavior and intention would be strengthened with a declining satisfaction, presenting a trend of marginal increase. Tse and Wilton (1988) discovered that with the stimulus of recovery strategies, purchase quantity of customers would not increase unlimitedly with increased satisfaction. It would rather remain at a certain

horizontal level when increased to a certain degree. As early as 1978, Dodson et al. concluded that price promotion would hardly contribute to the reinforcement of intrinsic motive in purchasing (trust in the brand or emotionally attached to the brand). Instead, it might make consumers price sensitive. On the contrary, non-price promotion would intensify consumers' intrinsic motive in purchasing and reduce their price sensitivity. Furthermore, Tang et al. (2007) also found the curve fitted between customer satisfaction and purchase quantity is non-linear. They found that, when customers are sensitive to price, the function curve would exhibit a trend of marginal decline; whereas when customers are insensitive to price, the function curve would exhibit a trend of marginal increase. Although disagreement exists about the linearity and nonlinearity nature of the function curve between customer satisfaction and purchase behavior, it seems that more studies are in favor of the non-linear nature of the curve. The above studies have also shown that with the stimulus of non-price promotion strategies, the function curve fitted between customer satisfaction and purchase intention presents a trend of marginal increase, whereas with the stimulus of price promotion strategies, the function curve presents a trend of marginal decline. Based on these conclusions, the authors put forward the following hypotheses:

H5 In the positive recovery group, when customers encounter with service failure, (a) purchase intention (I_{t+1}) increases with increased satisfaction (SAT_{t+1}) in the case of explanation and apology by senior managers (S_{N1}), and the function curve fitted between customer satisfaction and purchase intention is non-linear and presents a trend of marginal increase. (b) Purchase intention (I_{t+1}) increases with increased satisfaction (SAT_{t+1}) in the case of discount strategy (S_{N2}), and the function curve fitted between satisfaction and purchase intention is non-linear and presents a trend of marginal decline.

H6 In the positive recovery group, when customers encounter with unfair price: (a) purchase intention (I_{t+1}) increases with increased satisfaction (SAT_{t+1}) in the case of discount strategy (S_{N2}), and the function curve fitted between satisfaction and purchase intention is non-linear and presents a trend of marginal decline. (b) Purchase intention (I_{t+1}) increases with increased satisfaction (SAT_{t+1}) in the case of explanation and apology by senior managers (S_{N1}), and the function curve fitted between satisfaction and purchase intention is non-linear and presents a trend of marginal increase.

2.5 To Explain Forms of the Curve Fitted between Customer Satisfaction and Purchase Intention with "Reversed-S" Theory and "S" Theory

In order to better observe the changing trend of customers' attitudes before loss and after recovery from a dynamic and longitudinal perspective, we are going to explain the change with "reversed-S" theory and "S" theory.

Parasuraman et al. (1985) held that service quality is an outcome of comparison between customers' prior expectation and posterior cognition. Hence, once service failure occurs, recovery of service providers can be predicted too. Oliver (1980) also pointed out that service recovery satisfaction (SRS) is equivalent to the difference between service recovery expectation (SRE) and service recovery performance (SRP). If SRE is greater than SRP, the result will be negative, whereas if SRE is lower than SRP, the result will be positive. Goodwin and Ross (1992) pointed out that poor service recovery would give rise to lower evaluation by customers than that before service failure. In contrast, effective recovery could not only restore customers' satisfaction, but also enhance their future purchase intention. Some researchers have proved that under the circumstance of service failure, if performance level is lower than customers' recovery expectation, then their satisfaction will be lower than before. On the contrary, if performance level is higher than customers' recovery expectation, then their satisfaction will be higher than before (e.g., Oliver, 1980; Tse and Wilton, 1988), and this new satisfaction and dissatisfaction will be stronger than before (Hart et al., 1990).

That is to say, in the case of service failure, when customers' satisfaction moves from the reference point to both ends, the curve presents a trend of marginal increase. "Reversed-S" theory, also known as disappointment theory, means when result of an individual behavior is lower than original expectation, then a "disappointed" depression will be generated, and otherwise, an "excited" pleasure will be generated. This emotional experience can add value to the evaluation of individual behaviors, namely, "value added" or "devalue" to evaluation of individuals (Loomes and Sudgen, 1982). Specifically, when consumers' value perception moves from the reference point to both ends, the curve also presents a trend of marginal increase. Therefore, the authors believe that the curve fitted between customer satisfaction and purchase intention of customers encountered with service failure can be interpreted by disappointment theory. We hence develop the following hypothesis:

H7 When applying recovery strategies to lost customers (including all customers in the positive recovery group and negative recovery group in the period P_{t+1}), if recovery effect is higher than customers' recovery expectation, then their purchase intention (I_{t+1}) above the reference point will ascend with increased satisfaction (SAT_{t+1}), presenting a trend of marginal increase. And if recovery effect is lower than their recovery expectation, then the purchase intention (I_{t+1}) below the reference point will descend with reduced satisfaction (SAT_{t+1}), presenting a trend of marginal increase.

In contrast, according to the research conducted by Levesque and McDougall (2000), prior to encounter with service failure and unfair price (namely, prior to

loss of customers), customers tended to buy products or service in stores of high service quality, but not those of poor service quality, because they believed service manifestation could be predicted. Thus, "consumption expectation" of customers refers to the reference point here. In addition, it is supported by studies that loyalty of satisfied customers never encountered with service failure is lower than that of customers encountered with service failure and recovery (Michel, 2001; Gilly, 1987; Zeithaml, 1996). Other studies confirmed that within the adjustable satisfaction interval (intermediate range of satisfaction), a new customer is more captious than a "recaptured" customer. When products and services are different from their expectation, they may exaggerate this discrepancy, leading to stronger disappointment (excitement). As reflected in the chart, the curve is steep in the middle and plain at both ends, and presents a trend of marginal decline from middle to both ends. According to the prospect theory (also termed as "S" theory), the function curve of customers' perceived value of gain and loss is non-linear and S-shaped, and that the curve of value perception presents a trend of marginal decline from the reference point to both ends (Kahneman and Tversky, 1979), namely, steep in the middle and plain at both ends. Considering that the correctness of "S" theory has been verified in different contexts (Mittal and Baumann, 1998; Oliva, Oliver and MacMillian, 1992), we suppose that the function curve fitted between customer satisfaction and purchase intention of customers before encountering with service failure and unfair price approximates more to a curve in the shape of "S." Accordingly, the following hypothesis is proposed:

H8 As for customers not involved in service failure or unfair price (including all customers in the positive recovery group and negative recovery group in the period P_{t-1}), if service or price is higher than their expectation, then the purchase intention (I_{t-1}) above the reference point will ascend with increased satisfaction (SAT_{t-1}), presenting a trend of marginal decline; otherwise, the purchase intention (I_{t-1}) below the reference point will descend with reduced satisfaction (SAT_{t-1}), presenting a trend of marginal decline.

3 Research Design

This research chooses to study the cafe industry because coffee bars are part of many people's daily life, which makes them familiar with all sorts of service failure and recovery strategies in the industry. All these make the industry suitable for simulation of service failure and recovery. The study by Schoefer (2008) proved that cognition and emotion play a significant role in satisfaction recovery of customers encountered with service failure. Tangible recovery matches cognition, while psychological recovery matches emotion. As for measurement of recovery strategies, we can refer to studies conducted by

Hoffman, Kelly and Rotalsky (1995) and Zheng (2002). Their study on the 12 recovery strategies proved that, "free of charge" and "discount" would lead to higher satisfaction in terms of price than satisfaction in terms of psychology, whereas "explanation and apology" would lead to higher satisfaction in terms of psychology than satisfaction in terms of benefit.

This research adopts "discount" as a tangible recovery strategy and "explanation and apology" by senior managers as a psychological recovery strategy. Measurements for satisfaction, satisfaction recovery, and purchase intention and repurchase intention are adopted from relevant research conducted by Gustafsson and Roos (2005), James et al. (2002), and Baker, Parasuraman, Grewal and Voss (2002), respectively. All the scales used in the research consist of three 7-point Likert items. Here, we design two types of questionnaires, one field questionnaire includes customers' basic information and correlated variables and the other one, telephone questionnaire includes measurement of correlated variables and open-ended questions of customer complaints and opinions. Besides, with the research background of service failure and unfair price in experimental design, the study designates a consumption feeling of unfair price among half of the subjects and a feeling of ill-mannered service among the other half of subjects.

To minimize the impact of a realistic experiment on business in a coffee bar, our testers chose morning and afternoon as the time of experiment when there were fewer customers. Gaining consent from A Walk in the Clouds Café (a chain cafe consisting of 5 chain stores), Good Wood Coffee (consisting of 11 chain stores) and Butterfly Cafe (consisting of 8 chain stores), we selected 240 customers as participants who have had consumption experience in the café that we conducted the survey (or in its chain cafe bars). We also trained the café employees and invited them to participate in the survey. The authors randomly selected four seats in each coffee bar from a computer. Customers seated in designated seats were regarded as our "subjects" (we sample 10 or more customers in each cafe). These customers were tracked for measurement and we chose four periods to repeatedly measure their satisfaction and purchase intention. Meanwhile, during these four periods, other relevant information was also collected.

Procedures and methods applied are as follows. 1) Supervisors of the coffee bar led customers into their seats. Then our researchers approached to these customers and handed out questionnaires so as to confirm whether they have had consumption experience in the very cafe or in any other nearby chain stores. Researchers also sent gifts to these customers and collected information on customer satisfaction, purchase intention, contact number, and other information. 2) Afterwards, for customers seated in even-numbered tables, attendants gave them on purpose a menu in which prices were adjusted higher by 30%–50%. As

for customers in odd-numbered seats, attendants were required to offer them the menu sluggishly and hasten them to place an order in an arrogant and impatient manner, and then left impolitely. In such a way, customers encountered unfair price and service failure. 3) In the following one month or so, researchers called these customers via phone and collected data on satisfaction and purchase (switching) intention, so as to confirm whether customers had been lost and to collect customers' complaints. During telephone conversation, we discovered that customers' complaints could generally be categorized into two types. One type is dissatisfaction with attendants' words/expression, such as, "What an attitude! They must think I cannot afford a single cup of coffee?" or "If they do not fire that attendant, no one will come to the coffee bar any more." The other type is complaint on price, such as "I went to the bar several days ago when a cup of Royal coffee was only 20 yuan. Now is 30? That is ridiculous"; "The coffee is 20 yuan a cup in other chain stores, but they charge 30 yuan here. I think that is too expensive." All these complaints proved that service failure and unfair price in the research design have exerted certain effects on consumers. 4) Then we divided customers into two groups according to the reasons of customer loss, namely the service failure group and unfair price group. After a random selection by computer, through telephone call, half of the customers in each group were offered VIP cards free of charge and half received apology made by senior managers of the café. After implementation of these recovery strategies, researchers collected data on customers' recovered satisfaction and repurchase intention via telephone calls.

The whole data collection process lasted for one and half months. Altogether, 260 samples (217 valid ones) in above three cafés were collected, including 108 about service attitude (13 negative recovery samples) and 109 about unfair price. The 43 invalid ones included those "un-lost" customers, customers we were unable to get into touch with and customers unwilling to be continually investigated. Supported by a generous research grant, we invited all customers involved to attend a lottery draw at the end of the experiment. The research team then announced the purpose of this experiment and expressed our appreciation to all participants. Meanwhile, we made up for possible losses to the three participating chain cafés.

SPSS11.5 was used to analyze the reliability and validity of the questionnaire. Reliability refers to survey on the coefficient of internal consistency, whereas validity refers to investigation on structured validity index. According to requirements of relevant statistic index, when Cronbach's Alpha value of all variables exceeds 0.70, it implies high reliability of the items is measured. Item-total correlation reflects the internal structure of a dimension. The item-total correlation of all items in the questionnaire used in this research are somewhere between 0.6–0.8. In addition, the value of Sphericity KMO of the measuring scale is above 0.6 and cumulative percentage is above 60%, indicating good

reliability and structural validity of the questionnaire. Therefore, the design of the questionnaire is scientific and can be used to test the hypotheses, as shown in Table 1.

Table 1 Reliability and Validity of Questionnaire

Variable		Subject item	Item-total correlation	Cronbach's alpha	KMO	Cumulative percentage
P_{t-1}	Satisfaction	As a whole, I am satisfied with this coffee bar	0.709	0.830	0.721	74.67
		Service quality of this coffee bar is almost to my expectation	0.695			
		Price of this coffee bar is almost similar to what I have expected	0.664			
	Purchase intention	I would like to consume in this coffee bar	0.771	0.861	0.729	78.27
		I would like to recommend this café to my friends	0.709			
		There is high possibility that I choose to consume here	0.731			
P_t	Satisfaction	As a whole, I am satisfied with this coffee bar	0.685	0.774	0.677	69.27
		I am quite satisfied with the service in this coffee bar	0.564			
		I am quite satisfied with the price in this coffee bar	0.593			
	Purchase intention	I would like to consume in this coffee bar	0.821	0.901	0.748	83.95
		I would like to recommend this café to my friends	0.778			
		There is high possibility that I choose to consume here	0.827			
P_{t+1}	Recovered satisfaction	As far as I am concerned, this coffee bar has offered a satisfactory reply to problem I have encountered here	0.717	0.744	0.691	68.23
		I am not satisfied with the handling of the problem I have encountered here	0.621			
		This coffee bar has manifested enough sincerity for their service failure	0.529			
	Repurchase intention	I would like to continue to consume in this coffee bar	0.664	0.847	0.718	76.86
		I would like to continue to recommend this café to my friends	0.747			
		There is high possibility that I would continue to choose to consume here	0.753			

4 Test of Hypotheses

4.1 Statistical Test of Satisfaction and Purchase Intention

In H1, during the period P_t, no significant difference exists between purchase intention of customers in the positive recovery group and in the negative recovery group. During the period P_{t+1}, satisfaction and purchase intention of customers in the positive recovery group is obviously higher than that in the negative recovery group. In order to verify this hypothesis, negative recovery group is confirmed to include customers whose purchase intention remains lower after implementation of recovery strategies than that when they are lost ($I_{t+1} < I_t$) (24 samples in total). Otherwise, customers with higher purchase intention constitute the positive group ($I_{t+1} > I_t$) (193 samples in total). We use one-way analysis of variance to verify the hypothesis, and the statistical results are presented in Table 2. During the period P_t, no obvious discrepancy exists between purchase intention of customers in the positive recovery group and customers in the negative recovery group ($p > 0.05$). During the period $P_{t+1,}$ satisfaction ($SAT_{t+1} = 4.164$) of customers in the positive recovery group is obviously ($p < 0.01$) higher than customers in the negative recovery group ($SAT_{t+1} = 2.693$). During the period $P_{t+1,}$ purchase intention ($I_{t+1} = 4.394$) of customers in the positive recovery group is obviously ($p < 0.01$) higher than customers in the negative recovery group ($I_{t+1} = 2.413$). These conclusions are consistent with conclusions drawn by Labarbera and Mazursky (1983). Hence, H1 is supported.

Table 2 Statistical Results of One-Way Analysis of Variance

Measurement index	Sample size	SAT_{t+1}		I_{t+1}		I_t	
		Mean	*Diff*	Mean	*Diff*	Mean	*Diff*
Positive recovery group	193	4.164		4.394		2.354	
			1.471[a]		1.981[a]		0.06
Negative recovery group	24	2.693		2.413		2.294	

Note: a denotes $p < 0.01$.

One-way analysis of variance is adopted for verification of H2 and H3 and statistical results are presented in Table 3. In the positive recovery group, as for customers lost due to service failure, their satisfaction in the case of explanation and apology by senior managers is obviously higher than that in the case of discount offer (*Diff* = 0.730 4, $p < 0.01$), and their purchase intention is also obviously higher (*Diff* = 0.632 8, $p < 0.01$). As for customers lost due to unfair

price, their satisfaction in the case of discount offer is obviously higher than that in the case of explanation and apology by senior managers (*Diff* = 0.489 6, $p < 0.01$), and their purchase intention is also obviously higher (*Diff* = 0.340 2, $p < 0.05$). These conclusions further corroborate viewpoints of Smith, Bolton and Wanger (1999) that customers' favorite service recovery pattern corresponds to the service failure type they are encountered with. That is, if the recovery pattern corresponds with its corresponding cognitive fairness level, then the highest satisfaction will be generated. Hence, H2 and H3 are both supported.

Table 3 Statistical Results of One-Way Analysis of Variance

Measurement index	Service failure ($N = 95$)			Unfair price ($N = 98$)		
	S_{N1} (mean)	S_{N2} (mean)	*Diff*	S_{N1} (mean)	S_{N2} (mean)	*Diff*
SAT_{t+1}	4.485 5	3.755 1	0.730 4 [a]	3.972 8	4.462 4	0.489 6 [a]
I_{t+1}	4.687 2	4.054 4	0.632 8 [a]	4.292 5	4.632 7	0.340 2 [b]
Obs.	S_{N1} ($N = 47$), S_{N2} ($N = 4$)			S_{N1} ($N = 48$), S_{N2} ($N = 50$)		

Note: a denotes $p < 0.01$, b denotes $p < 0.05$.

Paired *T*-test is adopted for verification of H4 and statistical results are presented in Table 4). In the positive recovery group, customer satisfaction and purchase intention in the case of explanation and apology by senior managers is obviously higher than satisfaction (*Diff* = 0.19, $p < 0.05$) and purchase intention (*Diff* = 0.57, $p < 0.01$) before their encounter with service or price issues. Likewise, customer satisfaction (*Diff* = 0.35, $p < 0.05$) and purchase intention (*Diff* = 0.62, $p < 0.01$) in the case of discount offer are obviously higher than that before their encounter with service or price issues. Hence, H4 is supported.

Table 4 Statistical Results of Paired *T*-Test

Measure-ment index	$SAT_{t-1} \rightarrow SAT_{t+1}$					$I_{t-1} \rightarrow I_{t+1}$					Obs.
	SAT_{t-1}	SAT_{t+1}	Expected change	Actual	*Diff*	I_{t-1}	I_{t+1}	Expected change	Actual	*Diff*	
S_{N1}	4.04	4.23	+ [a]	+ [b]	0.19 [b]	3.92	4.49	+ [a]	+ [a]	0.57 [a]	95
S_{N2}	3.76	4.11	+ [a]	+ [a]	0.35 [b]	3.72	4.34	+ [a]	+ [a]	0.62 [a]	98

Note: Significant difference is verified by relevant (paired) *t*-test. + indicates decline and – indicates increase. a denotes $p < 0.01$, b denotes $p < 0.05$.

4.2 Evaluation on Changes in Customer Satisfaction and Purchase Intention by Means of Fitting Quadratic Regression Model

H5(a) has proposed that in the positive recovery group, purchase intention (I_{t+1}) of customers encountered with service failure increases with increased

satisfaction (SAT_{t+1}) in the case of explanation and apology by senior managers (S_{N1}). The function curve fitted between satisfaction and purchase intention is non-linear and presents a trend of marginal increase. In order to verify this hypothesis, researchers establish Linear Regression Model (1) and Quadratic Regression Model (2) as follows:

$$I_{(t+1)i} = b_0 + b_1 SAT_{(t+1)i} + \varepsilon. \quad (1)$$

$$I_{(t+1)i} = b_0 + b_1 SAT_{(t+1)i} + b_2 SAT^2_{(t+1)i} + \varepsilon. \quad (2)$$

In the positive recovery group, $I_{(t+1)i}$ refers to purchase intention of the i^{th} customer compensated by recovery strategies, $SAT_{(t+1)i}$ refers satisfaction of the i^{th} customer compensated by recovery strategies, b_0 is a constant in the regression equation, and b_1 and b_2 are parameters and ε is a random error.

The linear regression results indicate that $F = 57.05$, $R^2 = 0.56$, and $p < 0.01$. In the Linear Regression Model, the value of b_1 is positive ($b_1 = 0.75$; $p < 0.01$), implying a significantly positive relation between satisfaction and purchase intention. Regression results of Quadratic Model (see Table 5: Quadratic Model 1) ($F = 36.69$, $R^2 = 0.63$, $p < 0.01$) indicate that the fitting of Quadratic Regression Mode1 is better than Linear Regression Model. Regression results of Quadratic Mode1 ($b_2 = 0.301$, $p < 0.01$) signifies that the regression curve is concave downward and presents a trend of marginal increase (see the left side of Fig. 3). Higgins et al. (2000) pointed out that, when the strategy of pairing is adopted, people's emotional experience in expected results becomes stronger. If positive results occur as expected, then people emotional experience becomes more positive. Higgins et al.'s conclusion is consistent with our hypothesis. Hence, H5(a) is supported.

In a similar way, H5(b) has proposed that in the positive recovery group, the purchase intention (I_{t+1}) of customers encountered with service failure increases with increased satisfaction (SAT_{t+1}) in the case of discount offer (S_{N2}). The function curve fitted between satisfaction and purchase intention is non-linear and presents a trend of marginal decline. The linear regression results ($F = 100.19$, $R^2 = 0.68$, $p < 0.01$) indicate that, in the Linear Regression Model, the value of b_1 is positive ($b_1 = 0.83$; $p < 0.01$), implying a significantly positive relation between satisfaction and purchase intention. Regression results of Quadratic Model (See Table 5: Quadratic Model 2) indicate ($F = 59.39$, $R^2 = 0.72$, $p < 0.01$) that the fitting of Quadratic Regression Mode1 is better than Linear Regression Model. Regression results of Quadratic Model ($b_2 = -0.25$, $p < 0.05$) signifies that the regression curve is convex upward and presents a trend of marginal decline (see the right side of Fig. 3). When analyzing the effects of service recovery by integrating the perceived justice theory and the theory of disconfirmation between expectation and perception, Smith, Bolton and Wanger

Table 5 Regression Statistical Results Fitted between SAT_{t+1} and I_{t+1} for Customers Encountered with Service Failure and Compensated with Psychological Recovery and Tangible Recovery

Quadratic model 1						Quadratic model 2				
Sum of squares	Residual	F	P	R^2		Sum of squares	Residual	F	P	R^2
28.37	16.63	36.69	0.000	0.63		34.60	13.40	59.39	0.000	0.72
Parameter	Effect	Unstandardized coefficient *B*	Standardized coefficient *Beta*	t-value	p	Unstandardized coefficient *B*	Standardized coefficient *beta*	t-value	p	
b_0	Intercept	–0.367	—	–2.28	0.028	0.238	—	1.97	0.054	
b_1	SAT_{t+1}	0.907	0.907	8.37	0.000	0.680	0.680	7.07	0.000	
b_2	$SAT^2_{(t+1)}$	0.375	0.301	2.77	0.008	–0.242	–0.247	–2.57	0.013	

Table 6 Regression Statistical Results Fitted between SAT_{t+1} and I_{t+1} for Customers Encountered with Unfair Price and Compensated with Tangible Recovery and Psychological Recovery

Quadratic model 3						Quadratic model 4				
Sum of squares	Residual	F	p	R^2		Sum of squares	Residual	F	p	R^2
21.61	26.39	18.83	0.000	0.45		22.68	25.32	20.61	0.000	0.47
Parameter	Effect	Unstandardized coefficient *B*	Standardized coefficient *beta*	t-value	p	Unstandardized coefficient *B*	Standardized coefficient *beta*	t-value	p	
b_0	Intercept	0.250	—	1.500	0.141	0.152	—	1.041	0.013	
b_1	SAT_{t+1}	0.388	0.388	2.330	0.024	0.553	0.553	4.212	0.000	
b_2	$SAT^2_{(t+1)}$	0.256	–0.327	–1.969	0.013	–0.155	–0.199	–1.513	0.045	

Note: $p < 0.01$ indicates verification is significant at the level 0.01; $p < 0.05$ indicates verification is significant at the level 0.05.

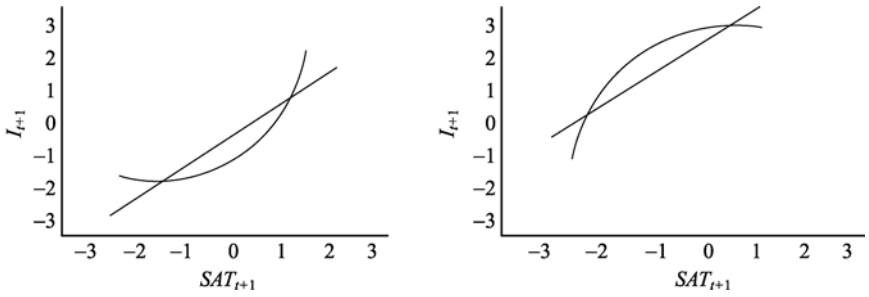

Fig. 3 The Function Curve Fitted between SAT_{t+1} and I_{t+1} for Customers Encountered with Service Failure and Compensated with Recovery Strategies

(1999) pointed out, customers' favorite service recovery pattern corresponded to the service failure type they had encountered. Since the discount offer is not as is expected by customers encountered with service failure, the curve presents a trend of marginal decline. Hence, H5 is supported.

In H6(a), in the positive recovery group, as for customers encountered with unfair price, their purchase intention (I_{t+1}) increases with increasing satisfaction (SAT_{t+1}) in the case of discount offer (S_{N2}). The function curve fitted between satisfaction and purchase intention is non-linear and presents a trend of marginal decline. The linear regression results indicate ($F = 31.84$, $R^2 = 0.40$, $p < 0.01$). In the Linear Regression Model, the value of b_1 is positive ($b_1 = 0.64$; $p < 0.01$), significantly not equal to 0, which implies a significantly positive relation between satisfaction and purchase intention. Regression results of Quadratic Model (see Table 6: Quadratic Model 3) indicate ($F = 18.83$, $R^2 = 0.45$, $p < 0.01$). Hence, fitting of Quadratic Regression Mode1 is better than Linear Regression Model. Regression results of Quadratic Mode 1 ($b_2 = –0.327$, $p < 0.01$) signifies that the regression curve is convex upward and presents a trend of marginal decline (see the left side of Fig. 4). From study on attribution theory about service recovery in the literature review, it can be speculated that customers encountered with unfair price are generally inclined to rational consumption. For rational consumers, the curve of their purchase intention will not present a trend of marginal increase with increasing satisfaction. Even if they are highly satisfied, they will make a final purchasing decision according to such factors as price and cost, etc. Hence, H6(a) is supported.

In H6(b), in the positive recovery group, as for customers encountered with unfair price, their purchase intention (I_{t+1}) increases with increasing satisfaction (SAT_{t+1}) in the case of explanation and apology by senior managers (S_{N1}). The function curve fitted between satisfaction and purchase intention is non-linear and presents a trend of marginal increase. The linear regression results indicate ($F = 37.89$, $R^2 = 0.45$, $p < 0.01$). In the Linear Regression Model, the value of b_1

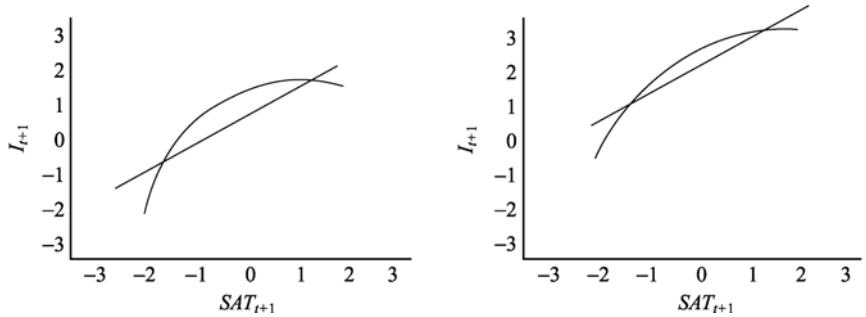

Fig. 4 The Function Curve Fitted between SAT_{t+1} and I_{t+1} for Customers Encountered with Unfair Price and Compensated with Tangible Recovery and Psychological Recovery

is positive ($b_1 = 0.67$; $p < 0.01$), significantly not equal to 0, which implies a significantly positive relation between satisfaction and purchase intention. Regression results of Quadratic Model (see Table 6: Quadratic Model 4) indicate ($F = 20.61$, $R^2 = 0.47$, $p < 0.01$). Hence, fitting of Quadratic Regression Mode1 is better than Linear Regression Model. Regression results of Quadratic Mode1 ($b_2 = -0.199$, $p < 0.05$) signifies that the regression curve is convex upward and presents a trend of marginal decline (see the right side of Fig. 4). H6(b) is not supported. It is supposed, the reason for the function curve presenting a trend of marginal decline is that most customers encountered with unfair price are price sensitive, and even if their satisfaction is considerably enhanced by explanation and apology of senior managers, their purchase intention will not increase accordingly. Thus, the curve presents a trend of marginal decline.

4.3 Analysis of the Function Curve Fitted between Customer Satisfaction and Purchase Intention Interpreted by Prospect Theory and Disappointment Theory

In H7, as for customers stimulated with recovery strategies (including all customers in the positive recovery group and negative recovery group in the period P_{t+1}), if recovery effect is high than recovery expectation, then the purchase intention (I_{t+1}) above the reference point will ascend with increased satisfaction (SAT_{t+1}), presenting a trend of marginal increase. Otherwise, the purchase intention (I_{t+1}) below the reference point will descend with reduced satisfaction (SAT_{t+1}), presenting a trend of marginal increase. This hypothesis is supported by means of the statistical method by Homburg et al. (2005) and Cubic Regression Model.

$$I_{(t+1)i} = b_0 + b_1 SAT_{(t+1)i} + b_2 SAT^2_{(t+1)i} + b_3 SAT^3_{(t+1)i} + \varepsilon,$$

here, $I_{(t+1)i}$ refers to the purchase intention of the i^{th} customer encountered with service failure (or unfair price) during the period P_{t+1}, $SAT_{(t+1)i}$ refers to the

satisfaction of the i^{th} customer encountered with service failure (or unfair price); b_0 is a constant in the regression equation, b_1, b_2 and b_3 are three parameters and ε is a random error. We use the estimation method of regression curve in SPSS13.0 to estimate the model. Regression results indicate (F = 104.45, R^2 = 0.77, p < 0.01) that fitting of the regression model is better (as shown in Cubic model 1 in Table 7). It can be seen from the regression results that the value of b_3 is positive (b_3 = 0.505, p < 0.01), implying that the curve is concave downward above the reference point. The value of b_2 is negative (b_2 = –0.012, p < 0.01), implying that the curve is convex upward below the reference point. According to research results, if recovery effect is high than recovery expectation of customers lost, then the purchase intention will ascend with increased satisfaction, presenting a trend of marginal increase; otherwise, the purchase intention will decline with reduced satisfaction, presenting a trend of marginal increase. These conclusions are consistent with findings of Hart et al. (1990). The entire regression curve is in a shape of "reversed-S" (see the left side of Fig. 5), which presents a trend of marginal increase when moving from the reference point to both ends. Hence, H7 is supported.

Table 7 Statistical Results of Cubic Regression Model

Cubic model 1					
Sum of squares	Residual	F	p	R^2	
119.60	80.40	104.45	0.000	0.77	
Parameter	Effect	Unstandardized coefficient B	Standardized coefficient *beta*	t-value	p
b_0	Intercept	–0.023	—	–0.524	0.601
b_1	SAT	0.394	0.394	4.128	0.000
b_2	SAT^2	0.011	–0.012	–0.375	0.008
b_3	SAT^3	0.201	0.505	5.272	0.000
Cubic model 2					
Sum of Squares		Residual	F	p	R^2
65.21		41.79	226.06	0.000	0.62
Unstandardized coefficient B		Standardized coefficient *beta*	t-value	p	
–0.728		—	–0.913	0.362	
–0.781		–0.781	–7.89	0.005	
–0.048		0.062	0.220	0.000	
0.000		–0.029	–0.281	0.003	

In a similar way, in H8, for customers not involved in service failure or unfair

price (including all customers in the positive recovery group and negative recovery group in the period P_{t-1}), if service or price is higher than their expectation, then the purchase intention (I_{t-1}) above the reference point will ascend with increased satisfaction (SAT_{t-1}), presenting a trend of marginal decline. Otherwise, the purchase intention (I_{t-1}) below the reference point will descend with reduced satisfaction (SAT_{t-1}), presenting a trend of marginal decline. As above, we adopt again the Cubic Regression Model to test this hypothesis.

$$I_{(t-1)i} = b_0 + b_1 SAT_{(t-1)i} + b_2 SAT^2_{(t-1)i} + b_3 SAT^3_{(t-1)i} + \varepsilon ,$$

here, $I_{(t-1)i}$ and $SAT_{(t-1)i}$ respectively refer to purchase intention and satisfaction of the i^{th} customer not involved in service failure (or unfair price) during the period P_{t-1}; b_0 is a constant term in the regression equation, b_1, b_2 and b_3 are three parameters and ε is a random error. Regression results ($F = 226.06$, $R^2 = 0.62$, $p < 0.01$) indicate the Regression Model has a satisfactory degree of fit (see the Cubic Model 2 in Table 7). It can be seen from the results that the value of b_3 is negative ($b_3 = -0.29$, $p < 0.01$), implying that the curve is convex upward above the reference point. The value of b_2 is positive ($b_2 = 0.062$, $p < 0.01$), implying that the curve is concave downward below the reference point. These conclusions are consistent with findings of Zeithaml (1996), namely customers encountered with service failure and compensated by appropriate recovery have higher repurchase intention and loyalty than customers satisfied at the very beginning. The entire regression curve is in a shape of "S" (see the right side of Fig. 5), which presents a trend of marginal decline when moving from the reference point to both ends. Hence, the statistical results are supportive of the hypothesis.

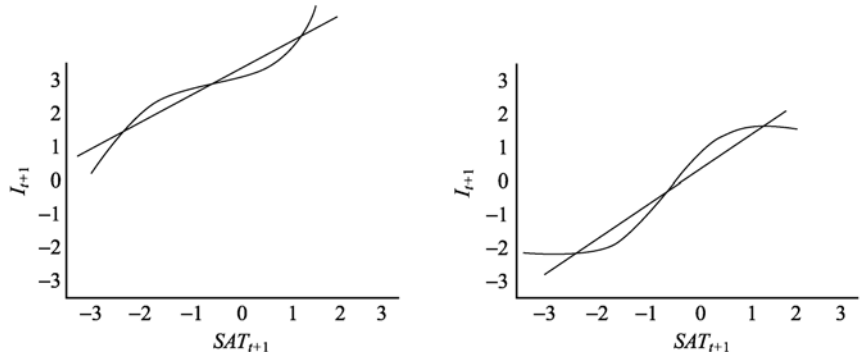

Fig. 5 Function Curve Fitted between Customer Satisfaction and Purchase Intention Interpreted by the Prospect Theory and Disappointment Theory

5 Conclusion and Management Implication

This study has pushed forward the existing studies which suppose recovery

strategy has significantly positive effects upon customer satisfaction and purchase intention of customers lost. However, the results in this paper are contrary to several conclusions in previous research. For example, we find that, for customers, an effective recovery strategy is a dynamic cognition process of satisfaction and purchase intention; matching of strategies plays a crucial role in the entire service recovery and has a direct effect on final recovery results. We also find that, the cognitive process of satisfaction and purchase intention in recovery is not a single recovery process: it usually implies further reinforcement of switching intention. From a dynamic and longitudinal perspective, satisfaction is not merely a single purchase behavior, but may cause changes of customers' adaptation at a horizontal level with the stimulus of recovery strategies. In the cognitive process from I_{t-1} to SAT_t and I_{t+1}, satisfaction plays a significant role in changes of customers' repurchase intention and switching intention in the process of recovery. Satisfaction level is an important explanatory variable for purchase intention. Customer satisfaction is a decisive mediator variable which decides whether or not lost customers can be won back.

Our findings show that, on the one hand, in the positive recovery group, customers' satisfaction is obviously higher than that in the negative recovery group. Thus, purchase intention in the former group increases with increased satisfaction to a certain degree. The Quadratic Regression Model results show that, all the other three groups of curves present a trend of marginal decline in the case of explanation and apology by senior managers except for the group of customers lost as a result of service failure. On the other hand, in the positive recovery group, both satisfaction and purchase intention exhibit a sign of asymmetry. For customers lost due to service failure, their satisfaction in the case of explanation and apology by senior managers is obviously higher than those in the case of discount offer. For customers lost due to unfair price, their satisfaction in the case of discount offer is much higher than those in the case of explanation and apology by senior managers. Thus, pertinent choice of recovery strategies based on specific customer-lost reasons can guarantee optimal recovery effects. Effective recovery strategies may contribute to higher customer satisfaction and purchase intention. On the contrary, inefficient recovery strategies may further intensify customers' switching intention. This conclusion is consistent with the case study of UPS mentioned at the beginning.

The function curve fitted between customers' satisfaction and purchase intention influenced by recovery strategies can be interpreted by "reversed-S" theory, which is consistent with conclusions made by Goodwin and Ross (1992) and Hart et al. (1990). That is, a poor service recovery may lead to lower evaluation by customers on service providers than when a service failure occurs. In contrast, appropriate recovery can not only recover customers' satisfaction, but can enhance their purchase intention in the future. This study further provides

support for rationality of the hypothesis of "recovery paradox." That is to say, for customers encountered with service failure or unfair price, if the recovery effect is higher than their expectation, then their satisfaction and purchase intention will rise substantially; and decrease otherwise. However, the function curve fitted between satisfaction and purchase intention of customers before encounter with service failure or unfair price can be interpreted by "S" theory. Above the reference point, the function curve fitted is on the rise, but presents a trend of marginal decline, which proves that customers' purchase intention will not increase substantially with increased satisfaction. On the contrary, below the reference point, the function curve fitted declines, but presents a trend of marginal decline, which proves that customers' purchase intention will not decline substantially with declined satisfaction. These findings are consistent with the hypothesis proposed by Gilly (1987), Kolter et al. (1999) and Zeithaml (1996).

This research has four important managerial implications. 1) In order to effectively win back lost customers recovery strategies and customer-lost reasons should be considered together, and principle of matching should be strongly emphasized. For customers encountered with unfair price, it is appropriate to take tangible recovery measures, such as price compensation, etc, and to offer recovery to customers without delay. For customers encountered with service failure, it is appropriate to take psychological recovery strategies, such as apology and communication, etc. 2) If recovery effect is higher than customers' expectation, their satisfaction may increase substantially. Otherwise, their satisfaction will decline substantially. Therefore, companies should attempt to avoid taking inefficient recovery measures. 3) It is an optimal choice for companies to dynamically observe customers' satisfaction and meticulously monitor customer recovery expectation, so as to confirm an optimal recovery reference point and improve effects of recovery strategies. 4) Companies should be fully aware of the importance of market investigation, so that they may adopt recovery strategies for complaints based on investigation of customers. To be more successful, companies shall not ignore the importance of clients information collection, which may help them better respond to various emergent incidents.

Limitations of this study including: 1) Although service failure and unfair price are the two primary reasons for customer loss, there might be other causes of customer loss which have not been taken into consideration in this study. 2) The two recovery strategies may complement each other in real management practices, but this study does not mention such a complementarity out of consideration of possible interactive influences. 3) Coffee is a sort of products with low participation of customers. Therefore, this research does not discuss the possible influences of active customer participation might have on our

conclusions. 4) Although this study has focused on reasons of customer loss, it does not consider the influence of possible individualized customer factors, such as gender difference, stability of emotion, price sensitivity, etc, on recovery effects.

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References

Anderson E W, Sullivan M W (1993). The antecedents and consequences of customer satisfaction for firms. Marketing Science, 12: 125–143

Anderson E W, Fornell C, Lehmann D R (1994). Customer satisfaction, market share and profitability: Findings from Sweden. Journal of Marketing Research, 58: 53–66

Anderson J A (1973). A theory for the recognition of items from short memorized lists. Psychological Review, 80: 417–438

Andreassen T W (2001). From disgust to delight: Do customers hold a grudge? Journal of Service Research, 4(1): 39–49

Babu P G, Pradeep S, Purva G H (2007). Service: The development of a preliminary instrument to measure service recovery satisfaction in tourism. International Journal of Hospitality & Tourism Administration, 8(1): 21–42

Baker J, Parasuraman A, Grewal D, Voss G B (2002). The influence of multiple store environment cues on perceived merchandise value and patronage. Journal of Marketing, 66: 120–141

Brandr R (1997). Satisfaction studies must measure what the customer wants and expects. Marketing News, 31(22): 17–18

Chang H S, Hsiao H L (2008). Examining the casual relationship among service recovery, perceived justice, perceived risk, and customer value in the hotel industry. The Service Industries Journal, 28(4): 513–528

Dodson J A, Tybout A, Sternthal B (1978). Impact of deals and deal retraction on brand switching. Journal of Marketing Research, 15: 72–81

Gilly M C (1987). Post complaint processes: From organizational response to repurchase behavior. Journal of Consumer Affairs, 21(2): 293–313

Goodwin C, Ross I (1992). Consumer responses to service failures: Influence of procedural and international fairness perceptions. Journal of Business Research, 25: 149–163

Griffin J, Lowenstein M W (2001). Customer Winback: How to Recapture Lost Customers and Keep Them Loyal. San Francisco: Jossey-Bass

Gustafsson A, Johnson M D, Roos I (2005). The effects of customer satisfaction, relationship commitment dimensions and triggers on customer retention. Journal of Marketing, 69(4): 87–98

Hart C, Heskett J, Sasser E J (1990). The Service Management Course. NY: Free Press

Higgins E T (2000). Making a good decision: Value from fit. American Psychologist, 55: 1217–1230

Hoffman K D, Kelley S W, Rotalsky H M (1995). Tracking service failures and employee

recovery efforts. Journal of Services Marketing, 9(2): 49–61
Homburg C, Koschate N, Hoyer W D (2005). Do satisfied customers really pay more? A study of the relationship between customer satisfaction and willingness to pay. Journal of Marketing, 69: 84–96
Jones T O, Sasser W E (1995). Why satisfied customers defect. Harvard Business Review, 73(6): 88–97
Kahneman T (1979). Prospect theory: An analysis of decision under risk. Econometrica, 47(2): 263–291
Keaveney S M (1995). Customer switching behavior in service industries: An exploratory study. Journal of Marketing Management, 59(4): 71–81
La Barbera P A, Mazursky D (1983). A longitudinal assessment of consumer satisfaction/dissatisfaction: The dynamic aspect of the cognitive process. Journal of Marketing Research, 20: 393–404
Larsen S, Bastiansen T (1991). Service attitude in hotel and restaurant staff and nurses. International Journal of Contemporary Hospitality Management, 4(2): 27–31
Levesque T J, McDougall G H (2000). Service problems and recovery strategies: An experiment. Canadian Journal of Administrative Sciences, 17: 20–37
Loomes G, Sugden R (1982). Regret theory: An alternative theory of rational choice under uncertainty. Economic Journal, 92: 5–24
Maxham III J G (2001). Service recovery's influence on consumer satisfaction, positive word-of-mouth, and purchase intentions. Journal of Business Research, 54(1): 11–24
Maxham III J G, Netemeyer R G (2002a). A longitudinal study of complaining customers' evaluations on multiple service failures and recovery efforts. Journal of Marketing, 66: 57–71
Maxham III J G, Netemeyer R G (2002b). Modeling customer perceptions of complaint handling over time: The effects of perceived justice on satisfaction and intent. Journal of Retailing, 78: 239–252
McCollough M A, Rerry L L (2000). An empirical investigation of customer satisfaction after service failure and recovery. Journal of Service Research, 3(2): 121–138
Michel S (2001). Analyzing service failures and recoveries: A process approach. International Journal of Service Industry Management, 12(1): 20–33
Mittal V, Ross W T, Baldasare P M (1998). The asymmetric impact of negative and positive attribute-level performance on overall satisfaction and repurchase intentions. Journal of Marketing, 62: 33–47
Oliver R L (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. Journal of Marketing Research, 17(4): 460–469
Oliva T A, Oliver R L, MacMillan I C A (1992). Catastrophe retention: An empirical investigation. Journal of Service Research, 1(2): 108–128
Parasuraman A, Berry L L, Zeithaml V A (1991). Refinement and reassessment of the SERVQUAL scale. Journal of Retailing, 70: 201–229
Parasuraman A, Zeithaml V A, Berry L L (1985). A conceptual model of service quality and its implications for future research. Journal of Marketing, 49: 41–50
Patterson P G, Johnson L W, Spreng R A (1997). Modeling the determinants of customer satisfaction for business-to-business professional services. Journal of the Academy of Marketing Science, 25: 4–17
Ping R (1995). Some uninvestigated antecedents of retailer exit intention. Journal of Business Research, 34(3): 171–180
Reichheld F R (1995). Satisfied customers come back for more. American Banker,

160(November): 13–14
Schoefer K (2008). The role of cognition and affect in the formation of customer satisfaction judgments concerning service recovery encounters. Journal of Consumer Behaviour, (May-June): 210–221
Smith A K, Bolton R N, Wagner J (1999). A model of customer satisfaction with service encounters involving failure and recovery. Journal of Marketing Research, 36(3): 356–372
Tähtinen J, Halinen-Kaila A (1997). The death of business triads: The dissolution process of a net of companies. The 13th IMP Conference, Lyon, France.
Tax S S, Brown S W, Chandrashekar M (1998). Customer evaluations of service complaint experiences: Implications for relationship marketing. Journal of Marketing, 62: 60–76
Thomas J S, Blattberg R C, Fox E J (2004). Recapturing lost customers. Journal of Marketing Research, 41(1): 31–45
Tokman M, Davis L M, Lemon K N (2007). The WOW factor: Creating value through win-back offers to reacquire lost customers. Journal of Retailing, 83(1): 47–64
Tse D K, Wilton P C (1988). Model of consumer satisfaction formation: An extension. Journal of Marketing Research, 25(5): 204–212
Xia L, Monroe K, Cox J (2004). The price is unfair! A conceptual framework of price fairness perceptions. Journal of Marketing, 68: 1–15
Zeithaml V A, Berry L L, Parasuraman A (1996). The behavioral consequences of service quality. Journal of Marketing, 60(2): 31–46
符国群，冯冈平，俞文皎 (Fu Guoqun, Feng Gangping, Yu Wenjiao) (2005). 顾客转换服务商原因分析：来自北京和广州的调查 (Analysis of causes for customer switching behavior: Investigation from Beijing and Guangzhou). 营销科学学报, (1): 15–26
胡左浩，杨志林 (Hu Zuohao, Yang Zhilin) (2006). 在线服务满意的决定要素及其满意对后续行为的影响研究 (Determinants of online service satisfaction and its influence on subsequent behaviors). 营销科学学报, (2): 32–41
唐小飞，贾建民，周庭锐 (Tang Xiaofei, Jia Jianmin, Zhou Tingrui) (2007). 关系投资和价格促销的价值比较研究 (Study on value comparison between relationship investment and price promotion). 管理世界, (5): 73–83
唐小飞，周庭锐， 陈淑青 (Tang Xiaofei, Zhou Tingrui, Chen Shuqing) (2006). 价格促销与D&B的价值比较研究 (A relevance empirical study on price promotion and D&B loyalty pattern). 中国工业经济, (10): 121–128
郑秋莹，范秀成 (Zheng Qiuying, Fan Xiucheng) (2007). 网上零售业服务补救策略研究——基于公平理论和期望理论的探讨 (Study on service recovery in online retail industry: Discussion based on equity theory and expectation theory). 管理评论, (10): 17–23
郑绍成 (Zheng Shaocheng) (2002). 服务补救满意构面之探索性研究 (An exploratory research of satisfaction level in service recovery). 管理评论, (3): 49–68
张全成，周庭锐，袁丽娟 (Zhang Quancheng, Zhou Tingrui, Yuan Lijuan) (2008). 基于顾客开发视角的顾客满意与消费行为关联研究 (Research on the link between customer satisfaction and customer behavior: A new customer management perspective). 预测, (4): 25–30