

# **Uncertainty Avoidance As A Moderator To Service Fairness And Customer Satisfaction In Online Banking**

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## **Abstract**

A growing number of studies have addressed the role of culture in ecommerce recently and more research on ecommerce with a cultural perspective is called for to further understand the nuances, and sometimes vast differences between customers of different cultural background. This article explores the issue of cultural differences in the context of online banking and examines one particular cultural dimension: uncertainty avoidance's impact on how customers' perception of fairness affects customer satisfaction. 131 surveys were analyzed and results show that uncertainty avoidance has a significant role moderating effect on the fairness-satisfaction and fairness-trust relationship for online banking customers. The findings suggest that customers with high uncertainty avoidance experience more satisfaction and develop more trust toward the service provider of online banking when they perceive that they have been treated fairly than customers with relatively low uncertainty avoidance and vice versa.

**Key words :** Service Fairness, Uncertainty Avoidance, Trust, Perceived Customer Value, and Satisfaction

# 不確定性規避對網路銀行用戶公平性與 滿意度關係的調節作用之研究

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## 摘要

近來對文化差異在電子商務中的影響的研究漸漸興起，而學者也呼籲未來的電子商務研究需要更多的從文化價值觀來著墨，以深度了解不同文化價值觀帶來的細微，或是顯著的不同。本研究探討在網路銀行中文化價值觀差異對顧客的影響，聚焦於文化價值觀中的不確定性規避對顧客感受到的服務公平性與滿意度之間關係的影響。通過對131份問卷的分析，我們發現在網路銀行中，不確定性規避在服務公平性與顧客滿意度及服務公平性與信任之間起到了調節的作用。具體來說，具有高不確定性規避的顧客在同樣程度的服務公平性提升下，相對低不確定性規避的顧客而言，感受到更高的滿意度，也對服務提供者發展出更深的信任，而反之，同樣程度的服務公平性減少對高不確定性規避的顧客造成的滿意度與信任傷害也比低不確定性規避的顧客更顯著。

**關鍵字：**服務公平性、不確定性規避、信任、顧客價值、顧客滿意度

# 1. INTRODUCTION

Despite the boundary-less reach of the internet, the adoption and penetration rates of ecommerce have demonstrated considerable variations among national and geographical boundaries. Recent research has addressed the role of cultural differences on consumers' behavior in ecommerce and called for more research with a cultural perspective to account for these variations (Efendioglu and Yip 2004; Gefen and Heart 2006, Lim et al. 2004, Sia et al. 2009). The well-known dimensions of culture, i.e., power distance, masculinity, individualism/collectivism, and uncertainty avoidance, have been examined across different contexts against various outcomes. Scholars have investigated the role of culture in individual's perception of fairness (Conner 2003; Patterson et al, 2006) and have found that the perception of fairness is influenced by individual cultural values. Cultural dimensions have also been reported to have a major impact on how perceived service quality affects customer satisfaction under different contexts. Van Birgelen et al. (2002) have reported that the perceived quality–satisfaction relationship is moderated by national culture in the case of an after-sales service contact mode. Reimann et al. (2008) investigated cultural dimensions, in particular uncertainty avoidance, as a moderator of the relationship between perceived service quality and customer satisfaction.

In contrast to the proliferation of studies on cultural differences in the bricks-and-mortar world, how cultural dimensions influence customer satisfaction with ecommerce, however, hasn't been explored yet. Scholars have indentified that service fairness, along with service quality, affects customer satisfaction (Seiders & Berry 1998). How fairness affects customer satisfaction with ecommerce, too, receives scant attention. This study set out to answer a few questions against the backdrop of cultural dimensions, in particular, uncertainty avoidance in ecommerce: 1) whether uncertainty avoidance will play a role in how perceived service fairness affects customer satisfaction in ecommerce, 2) whether identified mediators of service fairness to satisfaction, namely trust and perceived value, are affected by uncertainty avoidance under the ecommerce context as well, and 3) what implications these findings provide for researchers and practitioners.

The rest of this paper is organized as follows. The next section provides an overview of previous research on service fairness, customer satisfaction, uncertainty avoidance, trust and value. Subsequently we detail the research method, report the results, and discuss their implications for research and practice.

## 2. THEORETICAL BACKGROUND

### 2.1 Uncertainty Avoidance as a Dimension of Culture Value

In his highly influential work, *Culture's Consequences*, Hofstede (1980) differentiated uncertainty avoidance from “power distance,” “masculinity,” and “country-level individualism” as dimensions of culture. Hofstede defined culture as (1997, p. 9) “the collective programming of the mind which distinguishes the members of one group or category of people from another.” Values, the most basic manifestation of culture, are defined as “broad tendencies to prefer a certain state of affairs over others” (Hofstede 1980, p. 19).

Among the four dimension of culture, uncertainty avoidance is of particular interested to scholars. It has been identified as an important moderator to customer satisfaction in several studies (e.g. Patterson et al. 2006; Reimann et al. 2008). Uncertainty avoidance is believed to be the most important cultural value dimension related to defects in intercultural service quality (Reimann et al. 2008), and is found to be a predictor of the rate of adoption of internet shopping (Lim et al. 2004). It refers to the extent to which people feel the need to avoid ambiguous situations and manage such circumstances by providing explicit rules and regulations (Hofstede, 1980). The implications of uncertainty avoidance with regard to beliefs, attitudes, and behaviors are summarized in the table below (Adler 1997; Hofstede 2001; Lynn, Zinkhan, and Harris 1993):

Table 1: Implications of uncertainty avoidance

	High UA	Low UA
stress level	higher stress levels and an inner urge to be busy	low levels of stress and anxiety
emotion	robust superegos and more showing of emotions	weaker superegos and less showing of emotions
aggressive behavior	acceptance of aggressive behavior of self and others	aggressive behavior being frowned on
tolerance of uncertainty	less tolerance and acceptance of unclear situations, less acceptance of dissent and a strong need for consensus, clarity, and structure	greater tolerance and acceptance of diversity and uncertain situations
flexibility	a strong need for and adherence to rules and regulations to make behavior predictable	rules and laws should be adaptive and changed if they don't work
risk attitude	concern with security in life and knowing about risks	willingness to take unknown risks

### 2.2 Cultural dimensions at the individual level

Many researchers have applied Hofstede's framework at individual levels (Oyserman et al. 2002a). One reason for doing this is that many cross-cultural explanations work both at

the national and the individual levels (Leung, 1989). A high congruence between individual-level (pan-cultural factors) and cultural-level (cross-cultural factors) analyses has been reported (Leung and Bond, 1989), indicating the generalizability from individual level results to country is justifiable.

Earley and Mosakowski (1995) argued that individual-level analysis has the advantage of directly connecting the hypothesized aspect of culture to other constructs in the nomological network as it measures the relative degree of value endorsement (extent of sharedness) rather than aggregation according to nationality, which presumes that all cultural members are sharing a given perspective equally and identically. Oyserman et al. (2002b) articulated that individual-level approaches to culture 'assume that at least part of what (societal) culture is can be found at the individual level as articulated mental representations. These approaches treat culture as a set of internalized values, attitudes, scripts, and norms that are likely to influence cognitions, affect, and motivation...' (page 114). In other words, societal culture manifests itself as values, attitudes, scripts, and norms within individuals, which shape their cognitions, affect, and motivation. Lim et al. (2002) further argue that, like most daily activities, people's online shopping behaviors are shaped by the norms and values that characterize their societal institutions. Therefore, the use of an individual-level logic to develop predictions that build on average ways in which individuals in a culture are likely to behave based on an assumed link between societal norms and individual behaviors.

### **2.3 Service Fairness and uncertainty management**

Fairness or justice has long been investigated in sociology and psychology (Alexander & Ruderman, 1987; Colquitt et al. 2001; Beugre & Baron, 2001), and has been found to affect various employee attitudes and behaviors. In accord with equity theory, Carr (2007) proposed that an important set of service evaluations results from a comparison of services received. Comparisons are made against a pertinent standard, reference other or norm, where a reference other maybe "another person, a class of people, an organization, or the individual himself relative to his experiences from an earlier point in time" (Jacoby 1976, p.1053).

There are four dimensions of service fairness (Lind&Tyler, 1988; Cohen-Charash &Spector, 2001; Greenberg, 1993): 1) Distributive fairness refers to the fact that consumers compare how service resources (i.e., time and expertise) are distributed among them. 2) Procedural fairness deals with the procedures used to distribute service resources. To be perceived as fair, procedures need to be unbiased and consistently applied, not unduly favoring any one person or group. 3) Interpersonal fairness refers to the fact that service consumers want to be treated with civility and politeness. 4) Finally, service consumers want to be given information about the services in which they are involved, i.e. informational fairness. In addition, a new dimension called overall fairness or systemic fairness is proposed. Systemic fairness is defined as an evaluation of overall

fairness derived from the evaluation of original four dimensions of fairness (Beugre, 1998; Greenberg, 1990, 1996). Scholars have reasoned that fairness is especially exposed in service industries because of the intangibility of services heightens customers' sensitivity to fairness issues (Berry, Parasuraman & Zeithaml, 1994). In the online service context, where there's little, if any, interpersonal interaction, but ample information just a click away, the effects of fairness is still unexplored.

Lind and Van den Bos (2002) developed the uncertainty management theory, arguing that fairness judgments help people to cope with uncertainties in organizations and that in uncertain conditions, the effects of fairness is stronger than those in certain conditions, i.e., uncertainty moderates fairness effects. They suggest that uncertainty makes fair treatment more effective in reducing negative affect and increasing positive affect because being fairly treated is especially useful psychologically to people in uncertain circumstances (Lind & Van den Bos 2002). Fair treatment helps people manage their uncertainty because it gives them confidence that they will ultimately receive good outcomes and because it makes the possibility of loss less anxiety-provoking or even, as in fair gambles, enjoyable. In situations where uncertainty is coupled with clear fair treatment, the person in question is able to maintain positive affect, feel favorable toward the organization, and engage in the sort of pro-organizational behavior because fairness reduces the anxiety about being excluded or exploited, anxieties that might otherwise become very worrisome in uncertain contexts.

## 2.4 Customer Perceived Value

Customer satisfaction depends on derived value (Anderson et al. 1994), where value may be defined as the "fairness of the level of economic benefits derived from usage in relation to the level of economic costs" (Bolton & Lemon. 1999). It incorporates both desired and received value and emphasizes that value stems from customers' learned perceptions, preferences, and evaluations. It also links together products with use situations and related consequences experienced by goal-oriented customers (Woodruff, 1997). Value has been posited as a major driver of satisfaction and behavior intentions in various service evaluation models (e.g., Anderson & Fornell 1994; Andreassen 1998; Cronin et al. 2000).

Researchers have observed that a significant number of electronic commerce customers are motivated by low prices (McCune, 1999; Tanaka, 1999). Anderson and Srinivasan (2003) argue that perceived value in ecommerce is of particular importance as it is easy to compare product features as well as prices online.

## 2.5 Trust

Trust is regarded as the willingness of a party to be vulnerable to the actions of another party based on the expectation that the trustee will perform a particular action important to

the trustor, irrespective of the ability to monitor or control that other party (Mayer, Davis and Schoorman, 1995). Mcallister (1995) defined a cognition-based trust, which applies to exchange relationships, and distinguished it from affect-based trust that stems from affective bonds among individuals. Trust can be conceptualized of three dimensions: ability, benevolence, and integrity (Mayer, Davis and Schoorman, 1995). Similarly, Singh and Sirdeshmukh (2000) propose two dimensions of trust in the context of consumer trust: competence, which includes fulfilling the promised service performance in a reliable and honest manner, and benevolence, which taps the probability that service providers would hold consumers' interest ahead of their self-interest.

Scholars have regarded trust as the central construct in customer loyalty and repurchase intentions (e.g., Sirdeshmukh et al., 2002; Verhoef, Francis, & Hoekstra, 2002). Trust is crucial in the online transaction process, given the impersonal nature of the online environment (uncertainty), and the inability to judge product quality prior to purchase (information asymmetry) (Ba, 2001). Trust has also been studied in various research linking to customer satisfaction in buyer-seller relationship (e.g., Selnes 1998; Garbarino & Johnson, 1999; Hennig-Thurau & Klee, 1997).

### 3. RESEARCH MODEL

Based on the literature review, we propose uncertainty avoidance as a moderator in the fairness—customer satisfaction relationship along with trust and customer value as the mediators. Previous research showed that service fairness adds a significant new set of predictors of service satisfaction via a direct effect (Carr, 2007). To further explore the role of service fairness in an online context, we propose that service fairness as the key driver of service satisfaction. In addition, two possible mediators, trust and value are identified.

Fairness is deemed as a necessary condition for trust (Seiders & Berry, 1998). Folger and Konovsky (1989) proposed that fair treatment will lead to the development of trust. In accord with the cognitive-emotive causal order (Oliver 1997) and the social exchange theory, a number of commentators have theorized that trust evaluations will exert a direct influence on perceptions of satisfaction. Andaleeb (1996) posit that when the focal party trusts the source, it will feel secure by way of an implicit belief that the actions of the source will result in positive outcomes, which should also lead to high satisfaction. Thus, trust acts as a mediator of fairness and satisfaction.

Fairness may affect perceived customer value through three ways. First, price fairness will have a direct impact on customer's perceived value with increased sacrifice perceptions (Xia et al. 2004). Second, the emotional distress caused by unfair services may also reduce customer perceived value. And lastly, with respect to informational fairness, the reduced risks as a result of complete and comprehensive information will lead to an increase in perceived benefits, thus

increasing perceived customer value. On the other hand, the extra efforts spent in searching as a result of lack of information by the service provider could be considered as extra sacrifice, thus negatively influence perceived value. Scholars have found perceived value plays a key role in customer satisfaction (McDougall & Levesque, 2000; Patterson & Spreng, 1997). Value has been positioned as the central mediating construct to customer satisfaction in several research (Anderson & Fornell, 1994; Fornell et al., 1996, McDougall & Levesque, 2000). In sum, a fair service is positively related to perceived customer value, which in turn affects customer satisfaction.

The fairness to customer satisfaction with trust and customer value as mediators model was separately validated in an earlier paper (Zhu and Chen, 2009), and this paper builds on the existing framework to explore the role uncertainty avoidance plays in this relationship. Our research model is shown in figure 1 below.

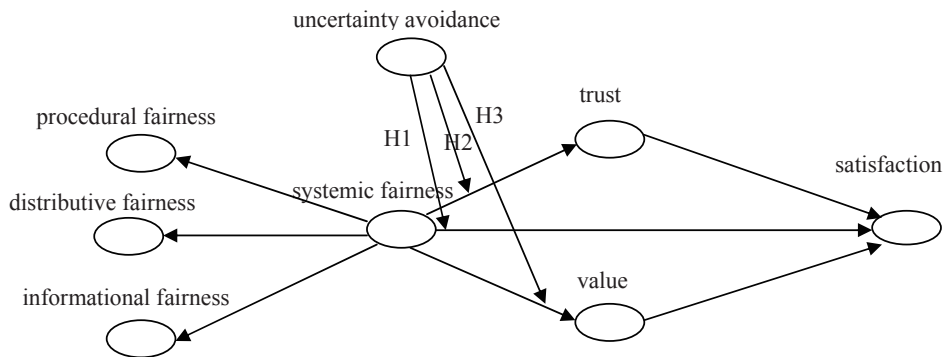


Figure 1 : Conceptual Framework

Customer with a relatively high degree of uncertainty avoidance have a much lower tolerance for ambiguity (Hofstede 1980, 2001); that is, these customers do not accept unclear situations, and any deviation from the normal variation is not accepted as easily as it is by customers with a relatively low degree of uncertainty avoidance. High uncertainty avoidance generally indicates higher anxiety and stress levels, a greater propensity to display emotions, and a tendency toward aggressive behavior when challenged (Hofstede 1980, 2001). When customers think they have been treated unfairly, their reactions tend to be immediate, emotional, and enduring (Seider & Berry, 1998). And this emotional anxiety and stress would be even more intensive for customers with high uncertainty avoidance, which may lead to a direct impact on customer's satisfaction toward the service. Similarly, the uncertainty management theory predicts that fairness have greater effects under conditions of greater uncertainty. Because people with high uncertainty avoidance have less tolerance for uncertainty and perceive higher levels of uncertainty given the same situation, it is likely that the effects of fairness is more salient for them. Thus, we have



H1: The higher the degree of uncertainty avoidance, the more salient is the effect of overall fairness to satisfaction

Doney et al. (1998) have argued that with high uncertainty avoidance, people are more likely to form trust via a variety of processes, namely, prediction, intentionality, capability and transference processes, whereas with low uncertainty avoidance, people are more likely to form trust via the calculative process only. Thus, for customers with high uncertainty avoidance, there are relatively more aspects that would affect their trust forming. For example, expectations based on past experience ( the prediction process), the motivation of the trustee ( the intentionality process), the capability of the trustee ( the capability process) as well as what other say about the trustee (the transference process). For customers with low uncertainty avoidance, however, their trust is more likely to formed via calculating the risks of the trustee acting in an untrustworthy way ( the calculating process), and is thus affected by relatively less factors. From the fairness perspective, there are several ways that may influence the forming of trust or distrust for high uncertainty avoidance customers. For procedural fairness, changes or inconsistencies in the process may trigger the prediction process, where customer compare expectations based on past experience with the actual outcome, and any unpredicted change would damage trust. With informational fairness, if there is a lack of information to ensure high uncertainty avoidance customers that 1) the trustee is capable of delivering the promise, and 2) the good intention of the trustee to keep the promise, the capability process and the intentionality process may be triggered and trust maybe impaired. For customers with low uncertainty avoidance, however, these effects should be less pronounced as they mostly rely on calculating the benefits and cost of the trustee not behaving trustworthily. Thus we have:

H2: The higher the degree of uncertainty avoidance, the more salient is the effect of overall fairness to trust.

Finally, we posit that uncertainty avoidance moderates the relationship between fairness and perceived value. The distress caused by unfair services may reduce customer perceived value more so for high uncertainty avoidance customers. Fairness involves calculating the input/output put ratio of self and others. According to Adams (1963), when the input–outcome ratio, compared to the ratio of other people is unequal, the individual is distressed and would seek to reduce the distress. The extra effort in relieving the distress may be considered as part of the price/sacrifice paid concerning the service, thus may reduce perceived customer value. As high uncertainty avoidance generally indicates higher anxiety and stress levels, which implies more efforts to reduce the anxiety and stress, the effect of fairness to perceived value should be more salient. Thus, we propose:

H3: The higher the degree of uncertainty avoidance, the more salient is the effect of overall fairness to perceived value

## 4. METHODOLOGY, ANALYSIS AND RESULTS

### 4.1 Methodology and measurement

Survey method is adopted to test the model. Online banking customers are selected as our sampling target. This study adopts customers of E.Sun Commercial Bank, Taiwan as our sample. We collected data from customers of E.Sun Commercial Bank, Ltd. from 10 branches in Taipei city. Questionnaires are handed out to bank customers that identify themselves as online banking users and filled on a voluntary basis with a small gift in return. A total of 162 surveys were collected; 131 out of 162 are valid ones. Table 2 below provides the profile of our sample.

Table 2: Sample Profile

Items	Value	percentage
Gender	Male	47
	Female	53
Age	Under 20	1.8
	21-25	30.5
	26-30	42.5
	31-40	18
	41-50	5.4
	51 and above	1.8
Education	high school and below	6.8
	College/University	76.4
	Master and above	17
Frequency of online banking usage	Every day	41.8
	Several times a week	32.1
	Once a week	15.8
	Every two weeks	4.2
	Once a month	1.2
	Once several months	4.8
How long have you been using online banking?	Less than a year half year	33
	1-3 years	47.3
	3-6 years	16.8
	Above 6 years	3

The questionnaire of this study could be separated into 3 different partitions. All questions adopt five-point Likert scales ranking from extremely disagree (1) to extremely agree (5). Pilot test was conducted by using a sample of 60 MBA students. The results of the pilot test help us further refine and modify our wording.

We developed the survey questionnaire based on previous research. Wording has been adapted to fit the online banking context. Fairness measurements are adopted from Carr (2007)'s work and includes interpersonal fairness, information fairness, procedural fairness, distributive fairness and systemic fairness. Since in the online context there's little interpersonal interaction, this dimension is removed. Perceived customer value and trust were adopted from Harris

and Goode (2004). Items measuring satisfaction were drawn from Carr (2007). Uncertainty avoidance was adopted from Srite and Karahanna (2006).

## 4.2 Results

Confirmatory factor analysis is performed and items with factor loading under 0.5 are deleted. Reliability gauged by Cronbach alpha coefficient and item-to-total is examined. Items with Cronbach alpha less than 0.7, and item-to-total less than 0.3 are deleted. In our questionnaire, all items score in Cronbach alpha above 0.745; most of them are above 0.8. And all item-to-total are all above 0.487. There is no item deleted in our reliability analysis. All constructs achieve an average variance extracted (AVE) of above 0.50, and composite reliability of above 0.80. Table 3 below summarizes the item loadings and t-statistics for the constructs in our model.

Table 3: Construct loading and t-statistics

item	loading	t-stat	item	loading	t-stat
Informational fairness (Composite Reliability = 0.817 , AVE = 0.535 )			Systemic fairness: (Composite Reliability = 0.899 , AVE = 0.691 )		
FI_1	0.681	11.458	FS_1	0.853	27.315
FI_2	0.831	23.963	FS_2	0.866	29.076
FI_3	0.834	26.884	FS_3	0.776	13.092
FI_4	0.533	4.597	FS_4	0.827	28.198
Procedural fairness: (Composite Reliability = 0.805 , AVE = 0.520 )			Trust : (Composite Reliability = 0.804 , AVE = 0.538 )		
FP_1	0.668	10.572	T_1	0.748	11.503
FP_2	0.854	44.936	T_2	0.864	34.254
FP_3	0.459	4.17	T_3	0.879	37.558
FP_4	0.832	29.21	T_4	0.265	1.95
Distribution fairness: (Composite Reliability = 0.890 , AVE = 0.729 )			Perceive value: (Composite Reliability = 0.876 , AVE = 0.703 )		
FD_1	0.831	20.694	PV_1	0.842	33.535
FD_2	0.874	33.643	PV_2	0.84	16.032
FD_3	0.857	28.509	PV_3	0.833	23.096
Satisfaction: (Composite Reliability = 0.929, AVE = 0.767 )			Uncertainty avoidance: (Composite Reliability = 0.852 , AVE = 0.591 )		
SA_1	0.859	20.592	UA_1	0.785	18.585
SA_2	0.86	28.225	UA_2	0.836	27.085
SA_3	0.896	37.089	UA_3	0.79	20.731
SA_4	0.888	42.218	UA_4	0.653	10.053

Convergent validity is gauged by examining the average variance extracted (AVE). Items associated with a given construct should be greater than .50, indicating more than half of the variance is true score instead of error (Fornell & Larcker, 1981). As table 3 indicates, all constructs exhibit acceptable convergent validity. Discriminant validity is estimated by comparing the construct correlations with the square root of AVE of the construct. In this method, the square root of AVE should be greater than the correlation between construct pairs (Barclay et al. 1995; Fornell and Larcker, 1981). Table 4 contains the construct correlations and on the diagonal the square root of AVE. It demonstrates that most of our constructs have good discriminant validity

Table 4: Latent variable correlation matrix with square root of average variance extracted on the diagonal in bold.

Variable							
systemic fairness	<b>0.835</b>						
value	0.459	<b>0.847</b>					
satisfaction	0.593	0.637	<b>0.873</b>				
trust	0.495	0.712	0.702	<b>0.722</b>			
procedural fairness	0.738	0.391	0.513	0.459	<b>0.718</b>		
informational fairness	0.673	0.478	0.496	0.439	0.647	<b>0.742</b>	
distribution fairness	0.757	0.408	0.476	0.424	0.667	0.58	<b>0.897</b>

Since we used self-report questionnaire, common method variance was examined. First we conducted Harman's one factor test (Podsakoff & Organ, 1986). All items were included in an un-rotated principal components factor analysis. This analysis produced five factors with eigenvalue greater than 1.0, with the first factor explaining 39% of the total variance. No general factor is apparent. Moreover, the confirmatory factor analysis showed that the single-factor model did not fit the data well, ( $p=.000$ , GFI= .597; CFI= .664; RMSEA = .138). While the results of these analyses do not preclude the possibility of common method variance, they do suggest that common method variance is not of great concern and thus is unlikely to confound the interpretations of results.

We test our hypotheses with partial least squares (PLS) technique. PLS is similar to LISREL in that both structural relationships among latent variables and relationships between latent variables and observed variables may be modeled. PLS multi-group analysis is deployed to test the moderating effects. PLS multi-group analysis a commonly preferred technique for detecting moderating effects of non-parametric variables (Stone & Hollenbeck 1989). The 131 samples were divided into two groups according to their scores in uncertainty avoidance. 50 that scored above average were grouped into the high uncertainty avoidance group, while 47 that scored below average were grouped into the low uncertainty avoidance group and 34 samples

that have average scores were discarded. The results of the PLS analysis of the moderating effects are presented in Table 5 below.

The findings support our hypotheses 1 and 2, while hypothesis 3 is not supported. Specifically, customers with high uncertainty avoidance experience more satisfaction and develop more trust toward the service provider when they perceive that they have been treated fairly in service encounters than customers with relatively low uncertainty avoidance. However, this is a double-sided sword. When customers with high uncertainty avoidance think that they've been treated unfairly, they tend to be more dissatisfied with the service and more trust is damaged than customers with relatively low uncertainty avoidance. Uncertainty avoidance, however, does not have an effect on customer's perceived fairness' impact on perceived value. Thus, hypothesis 3 is not supported. This may be due to the fact that perceived value is primarily determined by the price charged as compared to similar services, especially for price sensitive customers. As noted before, a significant number of electronic commerce customers are motivated by low prices (Goldberg, 1998; McCune, 1999; Tanaka, 1999), therefore, the perceived value in online banking customers may have been mostly related to price than other factors.

Table 5: results for PLS multi-group analysis

models	beta coefficient		sig. of differences	
	High UA	Low UA	(df=95)	
H1: fairness-> trust	0.519	0.380	t=3.98*	supported
	(0.009)	(0.225)	s=0.172	
H2: fairness-> satisfaction	0.400	0.206	t=6.98*	supported
	(0.136)	(0.139)	s=0.137	
H3: fairness->value	0.432	0.409	t=0.858	not supported
	(0.096)	(0.162)	s=0.132	

\* indicates p-value<0.001; () indicates standard error, s indicates pooled estimation for variance

## 5. DISCUSSION AND CONCLUSION

The important influence of cultural values in service satisfaction has been recently noted and more research has been called upon (Reimann et al. 2008). This study aims to explore the role of uncertainty avoidance in moderating customer's perceived fairness on customer service satisfaction, trust, and perceived value in the online banking context. The empirical analyses provided unique contributions to our knowledge in the domain of service evaluation. We identified that uncertainty avoidance has a significant moderating effect on the perceived service fairness–customer satisfaction and service fairness-trust relationship and that customers

with different culture values react differently to a given level of service fairness. The findings are consistent with what Lind and Van den Bos (2003) propose in the uncertainty management theory and other empirical research. It is possible that the emotional anxiety and stress caused by uncertainty, and the subsequent effort to relief the anxiety and stress are roots of the moderating effects. If that's the case, following the cognition-affect causal order (e.g., Bagozzi, 1992; Lazarus, 1991), then uncertainty avoidance is most likely to affect emotional or attitudinal outcomes, versus cognitive outcomes. In this study, hypotheses concerning the two attitudinal outcomes, satisfaction and trust, are supported while hypothesis with perceived value, a cognitive outcome, is not supported. This may be a first step to explore the processes and mechanisms underlying cultural values' influences.

### 5.1 Managerial Implications

These findings have important implications for service managers. First, the study shows that major differences in customer perceptions of service fairness across culture values exist. For customers with high uncertainty avoidance, a slight decline in service fairness level would result in a considerable large damage in customer's satisfaction and trust. Therefore, in service process management, consistency in procedural, informational, and distributive fairness should always be maintained in high uncertainty avoidance cultures. For ecommerce services, since customer interactions are delivered by web interfaces, it is very important to provide ways of appeals, for example, links to send a comment or talk to an agent online. For business process design, every webpage or steps in shopping/account management should have a "back" button so that decisions can be undo before being finalized. Also it's important to present a "confirm" screen before processing the final decision for procedural fairness.

Second, in dealing with customers with high uncertainty avoidance, service providers have to keep in mind that these are most likely both your most satisfied customers and your most dissatisfied patronage. Since high uncertainty avoidance generally indicates higher level of anxiety and stress, as well as a tendency toward aggressive behavior when challenged, in case of a service defect, it is important to respond quickly and attentively to these customers' voices and needs before further damaged is caused. In an online banking context, it is important to have all channels of communication open, for example, 800 phone numbers, email, live chat, and branch office information should all be provided on the website if available.

Third, to improve total service satisfaction, start working with high uncertainty avoidance customers that are dissatisfied may have the quickest effects as their levels of satisfaction improve more than their low uncertainty avoidance counterparts with a given level of improvements in service fairness. Given their preferences for clear rules, consistency, clarity and structure, any improvements that provide clearer explanations (informational fairness), more consistent services (procedural fairness), and easier-to-understand rules (procedural

fairness) would likely to immediately give total service satisfaction a boost. For online banking, it is crucial to have all the explanations, rules, and procedures clearly documented and easily-accessible throughout the website and provide live assistance to answer inquiry when possible.

Fourth, for new customers, due to the lack of experience with the service provider, the level of uncertainty is considered relatively high for the first few service encounters. Thus, early unfair treatment will have greater impact than later unfair treatment, especially for high uncertainty avoidance customers. This is consistent with the conventional wisdom that first impression matters. Therefore, service providers should ensure that the first few encounters with new customers are properly provisioned and any dissatisfaction is promptly taken care of. For online banking, special attention should be directed to the process design of account opening, and extra help is warranted for new customers.

Last, uncertainty avoidance, like individualism and collectivism, is both a worldview relevant to individual-level assessment that can be correlated to individual outcomes, behaviors, attitudes, and beliefs, and a cultural dimension that reflects country-level values and beliefs, (Oyserman et al. 2002a). Thus, this research applies to individuals of high uncertainty avoidance as well as countries with relatively high uncertainty avoidance culture. Service managers in high uncertainty avoidance cultures should pay special attention to the consistency of service fairness and response process and procedures to ensure maximum customer satisfaction.

## **5.2 Limitations and future research**

Several limitations of the study need to be noted. First, our data was collected from the customers of E.Sun Commercial Bank, Ltd. in Taipei. A larger sample from a more diverse background, i.e., location and bank affiliation, on a random sampling basis, would be preferred for better generalizability. Second, we only included uncertainty avoidance as a moderator, where other dimensions of culture, due to the limitation of resources, have not been examined. This could be an avenue for future research. Further work can also be directed toward investigating the moderating effects of uncertainty avoidance with different dimensions of perceived fairness other than overall fairness.

## **ACKNOWLEDGMENTS**

The authors are grateful for the support of NSC funding 97-2410-H-002-203

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