A Trust Mechanism on Decision-Making of Online Buyers on C2C Marketplaces

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Abstract- **After international financial crisis, more and more people tend to shopping online in China. In this paper, we devoted to find some crucial factors that affect buyers' decision-making and gave some suggestions to sellers and buyers to improve decision-making. Referring to some prior researches of trust mechanism, we found four factors that will affect the buyers' trust, namely perceived products, perceived service, perceived delivery and perceived risk. And the buyers' trust would make great effect on their shopping decision-making. Thus a buyers' decision-making model is proposed and several hypotheses were set. We conducted an empirical study to test the model and hypotheses. The results supported all the hypotheses and approved the effects of factors to buyers' decision-making. Our study not only helps the online buyers make a wise shopping decision, but also encourages the online sellers to improve the relationship with their customers.**

Keywords- Shopping Decision-Making; Trust Mechanism; C2C; E-Commerce

I. INTRODUCTION

The International financial crisis depressed nearly all the real industry, but inspired virtual industry, especially online retail in China. According to the Semi-annual Report of Online Shopping Research published by iResearch, in the first half of 2009, the scale of China's online retail market transaction is 103.46 billion yuan. Compare with 53.11 billion yuan in 2008, it increased more than 90%. The C2C market takes 92.1% of online retail market share, while the B2C market takes only no more than 8% in China. The report shows that the C2C market became the main stream of online retail Market [1].

Despite the fact that online retail are now winning more and more customers by providing these customers with a discounted price for products, favourable price alone may not be sufficient. From the report we also find online retail takes only1.9% in total retail sales of social consumer goods. The majorities still tend to offline shopping due to several reasons like the shopping habit, payment and delivery. One of the vital reasons is trust. Trust is still regarded as an order qualifier for buyers' decision-making [2].

In this paper, we identify factors that may affect the buyers' decision-making in C2C market and examine the relationships among the identified factors. We conduct an empirical research on Chinese buyers' decision-making in C2C shopping market (Taobao).

II. LITERATURE REVIEW ON TRUST MECHANISMS

Trust is subjective because the level of trust considered sufficient is different for each entity. It is the subjective expectation of the buyers on the sellers related to the sellers'

behaviours that could influence the buyers' belief in the sellers. Trust is also dynamic as it is affected by many factors that are difficult to measure and monitor. Since that, Taobao (China's leading C2C website) introduced the Dynamic Score to evaluate each store's trust in 2009. At the end of each transaction, customers will evaluate three factors of the store as below:

- Description agree with the goods
- Friendly service of Seller online
- Delivering the goods on time

In the Survey Report of Online Shopping in China 2008, CNNIC generate 4 core functional factors and 5 additional functional factors that affect the buyers trust [3].

TABLE II FACTORS INFLUENCING TRUST (CNNIC 2008)

Core functional factors	Additional functional factors
Reliability of website brand	Friendly website design
Diversity of products	Easy-to-use products search engine
Security of e-payment	Satisfaction to the BBS
Speed and fee of delivery	Speed of website loading
	Efficiency of customer service

In the research report of e-buyer decision-making in China (iResearch, 2009), iResearch introduced a S-O-R model to describe the shopping decision-making. S (Stimulus) represents stimulative which lead to consumers' feedback; O (Organism) represents buyer; R (response) represents the feedback. This model means the consumers' decision-making induced by stimulative, which comes from outside environment, physiological and psychological need. According to S-O-R model and the process of online shopping, iResearch abstracted 4 factors influencing e-buyers' decision-making, namely website market, products, service and buyers' attributes as Table 3 shows below [4].

TABLE III FACTORS INFLUENCING E-BUYERS' DECISION-MAKING (IRESEARCH 2008)

E-buyers' decision-making	Website platform	E-buyers' reviews	
		Website design	Website functions; Page view; Speed of loading
	Products	Reputation	
		Variety	
		Price	
		Brand	
	Service	Delivery	
		After sale service	
		Promotion	
	Consumers' attributes	Sex	
		Age	
		Incomes	
		Psychological need	Fashion; Amusement; Actuation; Convenience

III. RESEARCH MODEL AND HYPOTHESES

A. Buyers' decision-making model

Based on the relevant researches discussed above, a buyers' decision-making model is suggested to examine the direct and mediating effects of shopping intention in C2C Market in China. It is shown in Figure 2.
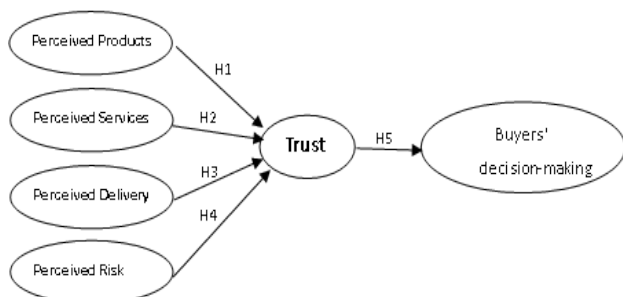

Figure 2: Buyers' decision-making model

In this model, the theoretical relationships of all the variables have been incorporated in the online C2C market context. A Buyer's decision-making from a C2C store is contingent on a buyer's trust. Meanwhile trust would also be influenced by perceived products, perceived service, perceived delivery, and perceived risk, all of which are set as independent variables in the model. Hence trust serves as a mediating variable while buyers' decision-making is a dependent variable. Based on this model, relationships among the variables are hypothesized below.

B. Variables and Hypotheses

1) Perceived Products and Trust

Perceived products means buyer believe that there are no difference between the purchased product and the product actually delivered. The buyer perceived the price of product is reasonable. They think the product they want to buy from the C2C online store agree with the description of the seller. We generate 3 factors of Perceived products.

PRO1. Top-quality goods without faker or pirate;

PRO2. Reasonable price;

PRO3. Goods agree with the photos and description.

Since online shopping without any geographic and temporal restriction, buyer only can gain partly information about the products through photos and literal description from web page. Till they get the products after transaction, the buyer knows the quality of the products. Heski et. al. (2008) point out that the quality of products affects directly to buyer evaluating the reputation of seller [5]. A perceived product is a crucial factor for buyer to make shopping decision. Therefore, we can reasonably hypothesize:

H1: Perceived products will positively affect buyer trust in C2C market.

2) Perceived Services and Trust

Perceived services means the subjective opinion buyers made when the seller serve to them during online shopping. Service qualities include many contents and we summered 4

factors of Perceived services.

Ser1. Friendly web pages;

Ser2. Easy-to-understood advertisements and promotions;

Ser3. Explain with patient through IM;

Ser4. Always online for service.

Buyers may concert about the services quality during shopping, and the perceived services will affect directly to their satisfaction to this shopping experience. Thus, we set up the following hypothesis:

H2: The perceived services will positively affect buyer trust in C2C market.

3) Perceived Delivery and Trust

Being one of the crucial factors in e-commerce, delivery plays a very important role of online transaction. When buyers make decision to buy some things online and pay for the prices and delivery fee, most of the products will be delivered to buyer by express. If the buyer wants to exchange or refund the products they bought online, they also need to delivered products to seller by express. The quality of delivery depends on three factors as follows.

DEL1. Package in good condition;

DEL2. Speed of delivery;

DEL3. Reasonable delivery fee.

Once the price difference between online and offline shopping is near or even lower than the delivery fee, many buyers will not choose buy online. If the products are frangible or cumbersome, delivery becomes the vital factor the buyer concerned. The perceived delivery makes great effect on buyers' trust during online shopping. So we can get the third hypothesis:

H3. The perceived delivery will positively affect buyer trust in C2C market.

4) Perceived Risk and Trust:

The Internet is an open, global, and constantly changing marketing channel. The C2C market in the virtual channel makes it hard to inspect physical goods (Jarvenpaa & Tractinsky, 1999) [6]. Compared to the traditional offline marketing channel, an e-buyer can get less assurance of transaction safety and product quality. Dowling & Staelin (1994) believed that a consumer's perceptions of the uncertainty and adverse consequences of engaging in an activity [7]. Since that, we generate 4 factors of perceived risk:

RISK1. Uncertainty associated with online shopping

RISK2. Revealed personal information

RISK3. Bank account lost or stolen

RISK4. Treat online

Moreover, when problems arise, sellers will probably attribute them to technical problems or systems problems. All these increase the uncertainty and may result in adverse

consequences for those engaged in transaction activities. When perceived risk is present and it is increasing, buyers 'trust will suffer'. Since that, we got the fourth hypothesis.

H4: Perceived risk will reduce buyers trust.

5) Trust and Buyers' Decision-Making

Trust helps reduce the social complexity that a buyer faces in e e-commerce by allowing the buyer to subjectively rule out undesirable yet possible behaviors of the e-vendor including inappropriate use of purchase information. In this way trust encourages business activities of online buyers. We set 3 factors of trust as follow:

TRU1. Effort to meet customer satisfaction;

TRU2. Customer care;

TRU3. Trustworthiness.

Some prior studies also suggest that there exists a direct and significant relationship between trust and purchasing intention (Jang et al., 2005) [8]. Based on most of the studies that have demonstrated the direct influence of trust on purchasing intention, the following hypothesis is suggested in this study:

H5: Higher buyer trust on a C2C store will bring more potentially drive buyer to make shopping decision.

IV. EMPIRICAL RESEARCH

A. Data Collection

To test the buyers' decision-making model, we conducted a one-month survey on Taobao's community. From 2009/08/01 to 2009/09/01, we sent 500 questionnaires randomly to online users, and gain 427 valid ones, recovery rate is 85.4%. The demographics profiles of the 427 participants, taking part in the survey, are summarized in Table 2.

Table 2. Demographic Data

Total	427 (100%)				
Gender	Male: 57%			Female: 43%	
Age	<18	18~22	22~28	28~45	>45
	7%	22%	31%	34%	6%
Education	High school or below	Bachelor		MA.	PHD.
	2%	43%		39%	16%
Income	<1000	1000~3000	3000~5000	5000~8000	>8000
(RMB/ M)	10%	36%	26%	21%	7%
Internet shopping experience	<1year: 10%				
	1~3years: 48%				
	3~5years: 36%				
	>5years: 6%				
Frequency of e-Shopping	≤ once a month: 12%				
	1~10 times per month: 72%				
	>10 times a month: 16%				

B. Reliability and Validity

Computing Cronbach's alphas assessed the internal consistency reliability of the variables. The Cronbach's alpha values of all the variables, ranging from 0.768 to 0.876, were well over 0.700, which was considered satisfactory for measures (Nunally, 1978).

Each variable was measured with multiple measurements. A factor analysis was conducted to check their unintentionality. To test for the construct validity of a variable, a principal-component factor analysis was conducted with a VARIMAX rotation. The results of factor analysis are shown in Table 3. Most of the factor loadings for the items appear above 0.6. The items were collected corresponding to each singular factor demonstrating a high convergent validity. As the factor loadings for a variable (factor) are bigger than the factor loadings for the other variables, it supports the instrument's discriminant validity (Chin, 1998) [9].

Table 3. Factors Analysis Results for Variables

	Component					Cronbach's Alpha(α)
	1	2	3	4	5	
PRO3	.836	.155	.072	.239	-.005	0.876
PRO1	.820	.276	.176	.116	-.132	
PRO2	.777	.283	.268	.084	-.124	
SER4	.160	.786	.260	.021	-.069	0.768
SER3	.233	.714	.330	.118	-.201	
SER2	.236	.645	-.065	.136	-.045	
SER1	.092	.627	.084	.322	-.005	
DEL1	.224	.145	.797	.140	-.180	0.854
DEL3	.030	.213	.774	.213	-.150	
DEL2	.142	.299	.731	.320	-.175	
RISK2	.084	.016	.016	.816	-.052	0.829
RISK3	.154	-.075	-.175	.799	-.082	
RISK1	.027	-.068	.033	.794	-.128	
RISK4	.250	-.039	-.163	.719	-.175	
TRU1	.006	.261	286	-.148	.779	0.795
TRU3	.279	.250	.273	.020	.747	
TRU2	.078	.210	.282	.106	.745	

C. Hypothesis Testing

The simple correlation among all of the research variables is shown in Table 4. A Pearson correlation was calculated for the variables measured by interval or ratio scales. Before conducting the multiple regression analysis, we checked potential multicollinearity among the antecedents since some variables were significantly correlated to others. Those variables showed significant correlations, their tolerance values, given by the SPSS 12.0 statistical application, indicating that multicollinearity was not a likely threat to the parameter estimates (Hair et al., 1995) [10].

Table 4. Correlation Analysis between the Research Variables (n=427)

	1	2	3	4	5
1. Perceived products	-				
2. Perceived service	.523***	-			
3. Perceived delivery	.432***	.608***	-		
4. Perceived risk	-.448***	-.473***	-.520***		
5. Trust	.329***	.340***	.299***	.489***	
6. Buyers' decision-making	.393***	.314***	.362***	.306***	-.476***

Table 5 shows the results of the multiple regression analysis testing the five hypotheses. The results indicate that the two regression models were significant at the $p<0.01$ level (F-value=65.154 and 100.2). In H1- H4, Perceived Product, Perceived Service , Perceived Delivery and Perceived Risk were significantly related to trust (β=0.281, $p<0.01$; β=0.225, $p<0.01$; β=0.203, $p<0.01$; β=-0.193, $p<0.01$). In H5, trust was significantly related to Buyers' decision-making (β=0.596, $p<0.01$) Consequently. So all the hypotheses were supported.

Table5.   Results of the Hypotheses Tests (From H1 to H5)

Model	F	Standardized coefficient (β)	Results
(1) Trust (TRU)			
TRU=PRO+SER+DEL+RISK+errors			
PRO(Perceived Product)	65.154***		
SER(Perceived Service)		0.281***	H1: Supported
DEL(Perceived Delivery)		0.225***	H2: Supported
RISK(Perceived Risk)		0.203***	H3: Supported
		-0.193***	H4: Supported
(2) Buyers' decision-making(BDM)			
BDM = TRU+errors	100.2***		
TRU (Trust)		0.596***	H5: Supported

V. DISCUSSION AND SUGGESTION

This study has found that trust has a strong significant relationship with buyers' decision-making. In other words, buyers' decision-making should be built on buyers trust on the C2C store. We also confirmed that buyers' trust will be greater when the sellers improve the quality of their online stores' products, service and delivery, and reduce the risk of online shopping. In order to help buyer to make shopping decision online, we propose some suggestions to buyers and sellers.

The buyers should compare the price and quality of the products before they make decision to buy those (Perceived Products). Read the description carefully and ask the seller in detail through IM is really helpful (Perceived service). Buyers should not forget to check the favourable delivery terms before transaction (Perceived delivery). Trying to use the third party payment like Paypal or Alipay instead of bank transfer directly can reduce the transaction risk. Choosing the store with higher reputation and checking their historical transaction record also help to reduce risk (Perceived risk).

The sellers should select suppliers carefully and assure their goods with high quality and low price. Use photos and description to help buyers know their goods better (Perceived Products). The new products or promoting products should be put remarkably on the homepage. Sellers should always ready to answer their customers' questions through IM, try to satisfy buyers' need and deal with the feedback or complain (Perceived Products). Cooperate with qualified express company and improve the speed of delivery and reduce the fee (Perceived delivery). Check the after-sale records regularly and settle the potential problems of products (Perceived risk). All the solutions would help sellers promote their reputation and increase the buyers'

trust before shopping.

VI. CONCLUSIONS

The buyers' decision-making model we suggested in this paper examine the direct and mediating effects of shopping intention in C2C Market in China. The research results showed buyer's trust make great effect on their shopping decision-making. There are 4 factors that affect the buyer's trust, namely perceived products, perceived service, perceived delivery and perceived risk. We proposed some suggestions to improve the trust between buyer and seller. Our research will redound to integrity trading on C2C market in China.

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APPENDIX

Questionnaires

1. Gender: A. Male   B. Female

2. Age: A. <18 B.18-22 C. 22-28 D. 28-45 E.>45

3. Education background:
    A. High School or below
    B. Bachelor
    C. Master
    D. Doctor

4. Incomes (RMB per Month):
    A. <1000
    B. 1000-3000
    C. 3000-5000
    D. 5000-8000
    E. >8000

5. Internet Shopping Experience:
    A. < 1 year

B. 1-3 years
C. 3-5years
D. >5years

6. Frequency of online shopping:
   A. < once a month
   B. 1-10 times a month
   C. >10 times a month

(To the follow Questions from 7 to 23, the answer 1 stands for "strong disagree", 2-disagress, 3-neutral, 4-agree, 5-strong agree)

7. Top-quality goods without faker or pirate are related to buyers 'trust.
   A. 1   B. 2   C. 3   D. 4   E. 5

8. Reasonable price of goods are related to buyers 'trust.
   A. 1   B. 2   C. 3   D. 4   E. 5

9. Goods agree with the photos and descriptions are related to buyers 'trust.
   A. 1   B. 2   C. 3   D. 4   E. 5

10. Friendly web pages are related to buyers 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

11. Easy-to-understood advertisements and promotions are related to buyers 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

12. Explain with patient through IM is related to buyers 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

13. Always online for service is related to buyers 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

14. Package in good condition is related to buyers 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

15. Speed of delivery is related to buyers 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

16. Reasonable delivery fee is related to buyers 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

17. Uncertainty associated with online shopping is related to buyers 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

18. Revealed personal information is related to buyers 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

19. Bank account lost or stolen is related to buyer s 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

20. Treat online is related to buyer s 'trust.
    A. 1   B. 2   C. 3   D. 4   E. 5

21. Sellers' effort to meet customer satisfaction is related to buyers' decision-making.
    A. 1   B. 2   C. 3   D. 4   E. 5

22. Sellers' customer care is related to buyers' decision-making.
    A. 1   B. 2   C. 3   D. 4   E. 5

23. Sellers' trustworthiness is related to buyers' decision-making.
    A. 1   B. 2   C. 3   D. 4   E. 5

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