

An examination on structural bonding in e-tailing trust and satisfaction (An empirical study on Chinese universities students)

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Abstract

The purpose of our study is to examine the relationship among structural bond, e-satisfaction, e-trust and customer's commitment, based on data collected from 383 universities students in mainland China. We used a random sampling paper based survey approach. Confirmatory Factor Analysis (CFA) has been performed to examine the reliability and validity of the measurement model. Structural Equation Modeling (SEM) technique was used to examine the hypotheses of the causal model. Our study reveals results that structural bond has indirect impact on customer's commitment via e-satisfaction and e-trust in e-tailing. However, managerial implications, study limitations and future research directions are provided in the subsequent sections.

Keywords: *structural bond, commitment, e-commerce, online retailing, China*

1. Introduction

In fact relationship marketing concentrates on the ways to build, develop, and maintain successful relational exchanges (Morgan and Hunt, 1994; Reynolds and Beatty, 1999) that is an essential way to sustain loyal customers (Hsieh et al., 2005). Recently marketing philosophy concentration has been changing from attracting short term, discrete transaction to retaining long lasting, intimate customers' relationship. Therefore, by building and sustaining relationship firms can increase financial performance (Sheth and Parvatlyar, 1995). Customer's commitment arena is an essential for loyalty. Thus customer's commitment is defined as an enduring desire to maintain a relationship (Moorman et al., 1992; Morgan and Hunt, 1994). It is also conceptualized as a "pledge of continuity" from one party to another (Dwyer et al., 19987). Some scholars argues that the commitment lies potential for scarifies or sacrifice that one party faces in the event that the relationship ends (Anderson and Weitz, 1992), or for the sake of alternative seeking from the market (Gundlach et al., 1995). Similarly, commitment refers as a resistance to change (Pritchard et al., 1999), and a sort of attitude change (Ahluwalia, 2000). Specifically, marketing scholars and researchers used various definitions and perspective to characterize two important components of commitment (Gundlach et al., 1995). The first component of commitment is based on liking and identification and second component is based on dependence and switching cost that are called affective and continuance commitment respectively (Allen, N. J., & Meyer, 1990). Specifically, customer's commitment is a precursor to the accomplishment of valuable outcomes for instance, future intentions (Kim et al., 2005) and profitability (Anderson and Weitz, 1992). Generally customer's commitment is prerequisite for customer loyalty. Previous studies explored three sorts of bonds i.e. financial, social and structural that can enhance customer's loyalty (Berry, 1995; Peltier and Westfall, 2000).

In recent years, internet has had a profound impact in the subject of marketing. Therefore, most of the consumers feel comfortable buying products through online mechanisms. Therefore, e-tailers have attempted to design website to attract customers to visit and revisit their sites. A lot of studies have explored the factors that could affect customers purchase behavior on the Web (Poddar et al., 2009). In mainland China scenario of e-commerce business has been changing and it is developing very rapidly. E-commerce market has pegged at \$295 billion in 2013 and it is projected to be \$713 billion in 2017 (Meng, 2014). The important fact is that over 60% online customers are young people (Fung Business Intelligence Center, 2013).

Therefore, we proposed and test an integrative model of structural bond and development of customer's commitment for e-tailers. We incorporate some mediating variables that include e-satisfaction and e-trust. Our study begins with the proposed model and the hypotheses. In the following sections, we described the research design, methodology, result analysis, study theoretical and managerial contributions, conclusion with limitations and future research directions.

2. Literature review and research hypotheses

This study draws from previous theories to develop hypotheses with regard to the impact of structural bonds on e-satisfaction, e-trust and customer's commitment in China. We derive a structural equation model (Fig.1), which illustrates the hypothesized relationships discussed in the consequent sections.

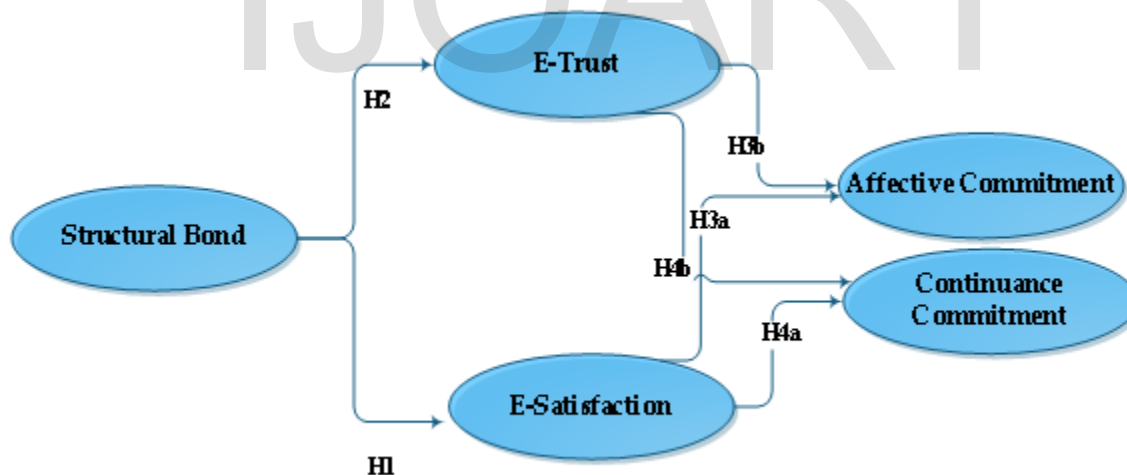


Fig.1 Theoretical Model and Hypotheses

2.1 The relationship between structural bond and e-satisfaction

Chen and Chiu (2009) refer the structural bond to include the product adaptation, the provision of valuable information, and the solution of consumer's problems. Furthermore, it is essential to provide value able information (Frazier, G., & Summers, 1984) and help to customers to make purchase decisions (Anderson and Weitz, 1989). Particularly, structural bonds are used to maintain and deepen client loyalty and having a marked impact on firm's profitability (Emmelhainz, M. A., & Kavan, 1999). Structural bonds emphasized the value added services

that help clients to be more efficient (Huang et al., 2014). In previous studies structural bonds have positive effects on relational constructs i.e trust, satisfaction and commitment (Čater, B., & Čater, 2009). Consequently, we propose the following hypothesis:

H1: The structural bond has positive impact on e-tailing customer's (students) satisfaction.

2.2 The relationship between structural bond and e-trust

Researchers define trust as “a willingness to rely on an exchange partner in whom one has confidence” (Moorman et al., 1992). Morgan and Hunt (1994) defined trust as the confidence in the exchange partner's ability, reliability and integrity. Garbarino and Johnson (1999) stated that customer trust in an organization is the confidence in the quality and reliability of the services offered. Previously, researchers have investigated the structural bonds impact via interpersonal interaction on variables that include trust, satisfaction and commitment (Čater and Čater, 2009; Huang and Yu, 2006). Consequently, we propose the following hypothesis as:

H2: The structural bond has positive impact on e-tailing customer's (students) trust.

2.3 The relationship between e-satisfaction, e-trust and customer commitment

Satisfaction is “an overall evaluation based on the total purchase and consumption experience with a good or service over time” (Anderson et al., 1994). Therefore, e-satisfaction is the precursor of customers' commitment (Kasmer, 2005). Brown et al. (2005) argued that acquisition of online shopping customer satisfaction is very difficult before attainment of trust. Ziaullah et al. (2014) demonstrated that e-satisfaction and e-trust have positive significant effect on customer's commitment. Therefore, we propose the hypotheses as:

H3a, b: E-tailing satisfaction and trust will positively effect on customer's affective commitment.

H4a, b: E-tailing satisfaction and trust will positively effect on customer's continuance commitment.

3. Research Methodology

3.1 Instrument design

We examined the literature to identify the valid measures for related constructs and adapted existing scales to measure structural bond (Chen and Chiu, 2009), e-satisfaction (Fornell et al., 1996; Kim et al., 2009), e-trust (Garbarino and Johnson, 1999; Ribbink et al., 2004) and customer's commitment (Fullerton, 2003). Since the scales drawn from the literature originally were in English. So we developed initial questionnaire in English, then translated into Chinese by two Chinese Master and Ph. D students. The Chinese version was checked against the English version for discrepancies. In mainland China, we used the Chinese version of the questionnaire. The indicators were all measured using seven-point Likert scale (1=strongly disagree, 7=strongly agree), where higher values indicated stronger structural bond, satisfaction, trust and customer's commitment in Chinese e-tailing.

3.2 Sampling and data collection

Data were collected from students in China. It is recommended that universities students are likely to be the first and more attractive potential consumers segment of e-commerce due to their high education level and income (Lightner et al., 2002). According to report of Fung Business Intelligence Center, Chinese online customers are young people and over 60% were aged 30 or below (Fung Business Intelligence Center 2013). We used a paper based survey and random sampling method to select our respondents from different locations of universities i.e. research labs, canteens, libraries and mini market during period of January-May 2014. In our study 430 respondents have completed the survey, after sorting and removing errors 383 valid and usable questionnaires left for data analysis. The response rate was 89 percent. The profile of respondents and their characteristics are stated in Table 1 and construct descriptive statistics in Table 2.

Tab. 1- Respondent profile (n=383)

Demographics Variable	Category	Sample	Ratio
Gender	Male	222	58.0%
	Female	161	42.0%
Age (Years)	Below-20	79	20.6%
	20-29	299	78.1%
	30-39	5	1.3%
Education Level	High School	3	0.8%
	Bachelor	218	56.9%
	Master	147	38.4%
	Ph. D	15	3.9%
Profession	Students	383	100%
Shopping Experience (Years)	Under-1	48	12.5%
	1-4	239	62.4%
	Over-4	96	25.1%

Tab. 2- Descriptive Statistics (n=383)

Descriptive Statistics			
Construct items	Means	Std. Deviation	Analysis N
S1	5.11	1.346	383
S2	5.14	1.214	383
S3	5.18	1.286	383
T1	2.48	1.618	383
T2	2.38	1.631	383
T3	3.56	1.677	383
T4	3.86	1.390	383
T5	3.79	1.387	383
T6	3.86	1.460	383
AF1	4.09	1.552	383
AF2	4.09	1.480	383
AF3	4.07	1.497	383
AF4	4.09	1.385	383
CC1	3.79	1.489	383

CC2	3.21	1.635	383
CC3	3.11	1.580	383
CC4	3.94	1.736	383
STB1	5.30	1.486	383
STB2	5.26	1.688	383
STB3	5.21	1.529	383
STB4	5.55	1.433	383
STB5	5.38	1.675	383
STB6	5.40	1.595	383

(STB: Structural Bond, S: Satisfaction, T: Trust, AF: Affective Commitment, CC: Continuance Commitment)

3.3 Construct development

Kaiser-Meyer-Olkin (KMO) used to measure sampling adequacy of our study. The results that showed KMO value of 0.844 with the significance of Bartlett’s test at 0.000 level, indicates the data for exploratory factor analysis (EFA) fitting. We used maximum likelihood analysis for data reduction and promax rotation with Kaiser Normalizations for clarifying the factors. Hence EFA was conducted with specifying five numbers of factors. The cumulative variance explanation reaches 65%. All the items have strong loadings on the construct in the pattern matrix which are >0.30 (Hair et al., 1998). The results of EFA are shown in Table 3.

Tab. 3- Results of exploratory factor analysis (EFA)

Construct Items	Structural Bond	e-Satisfaction	e-Trust	Affective Commitment	Continuance Commitment
STB1	0.793				
STB2	0.857				
STB3	0.784				
STB4	0.837				
STB5	0.894				
STB6	0.831				
S1		0.817			
S2		0.878			
S3		0.871			
T1			0.598		
T2			0.630		
T3			0.580		
T4			0.817		
T5			0.821		
T6			0.757		
AF1				0.822	
AF2				0.907	
AF3				0.787	
AF4				0.704	
CC1					0.594
CC2					0.898
CC3					0.800
CC4					0.562

*Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization. a. Rotation converged in 6 iterations. *(STB: Structural Bond, S: Satisfaction, T: Trust, AF: Affective Commitment, CC: Continuance Commitment)*

Tab. 4- Results of internal reliability and convergent validity tests

Construct	Internal Reliability			Convergent Validity		
	items	Cronbach α	Item Total Correlation	Standardized Factor Loadings	Composite Reliability	Variance Extracted
Structural Bond	STB1	0.93	0.799	0.848	0.94	0.70
	STB2		0.805	0.860		
	STB3		0.801	0.920		
	STB4		0.771	0.753		
	STB5		0.825	0.819		
	STB6		0.803	0.839		
E-Sat	S1	0.90	0.813	0.885	0.90	0.70
	S2		0.808	0.861		
	S3		0.810	0.868		
E-Trust	T1	0.86	0.642	0.664	0.88	0.57
	T2		0.638	0.638		
	T3		0.567	0.688		
	T4		0.687	0.798		
	T5		0.694	0.912		
	T6		0.670	0.805		
Aff. Commitment	AF1	0.88	0.680	0.719	0.88	0.66
	AF2		0.818	0.861		
	AF3		0.765	0.844		
	AF4		0.743	0.819		
Cont. Commitment	CC1	0.84	0.648	0.750	0.86	0.62
	CC2		0.751	0.866		
	CC3		0.756	0.841		
	CC4		0.526	0.677		

The internal consistency reliability of all items was examined by Cronbach alpha and item to total correlations. Therefore, the alpha coefficients and item to total correlations for each construct are shown in Table 4. The Cronbach's alpha of all measurement constructs ranges from 0.93 to 0.84. A Cronbach's alpha of value 0.7 or higher is commonly considered as a cut off for reliability (Nunnally 1978; Hair et al. 2006). Convergent validity has been examined based on measurement items standardized factor loadings, composite reliability and the variance extracted measures. The results of convergent validity test are also presented in Table 4. Standardized factor loadings of all items in each construct range from i.e. structural bond (0.920-0.753), e-satisfaction (0.885-0.861), e-trust (0.912-0.638), affective commitment (0.861-0.719) and

continuance commitment (0.866-0.677) that exceed the recommended level of 0.60 (Hair et al. 1998). The composite reliabilities (CR) range from 0.94 (structural bond) to 0.86 (continuance commitment) which exceed the recommended level of 0.70. The average variance extracted (AVE) measure ranges from 0.70 (structural bond) to 0.57 (e-trust) which is better than recommended value of 0.50 (Hair et al. 1998). The higher value of AVE, CR and factor loadings results, therefore adequately demonstrates the convergent validity of the measurement items.

4. Analysis and results

We used SPSS and AMOS-IBM version 21 to analyze the data and demonstrate structural equation modeling (SEM) of this study. It is a powerful multivariate analysis technique used to measure latent variables and investigate causal relationship among proposed model variable. Specifically, SEM allows conducting confirmatory analysis (CFA) for theory development and testing. The overall model fit indices are $\chi^2 = 464.83$, $df=205$ (p -values=0.00), $GFI=0.91$, $AGFI=0.87$, $NFI=0.93$, $CFI=0.95$, $RMSEA=0.049$ indicating that model is acceptable with no substantive differences. Moreover, fit indices of structural model are presented in Table 5. The factor correlation matrix and standardized parameter estimates of hypothesized paths are presented in Table 6 and 7 respectively.

Tab. 5- Fit indices for structural model

Fit Index	Scores	Recommended cut-off values
Absolute fit Measures		
Minimum fit function chi-square (χ^2)	464.83 ($p=0.00$)	The lower, the better
Degree of freedom (d.f)	205	
(χ^2)/d.f	2.267	<5
Goodness-of-fit index (GFI)	0.91	>0.80
Root mean square residual (RMSR)	0.049	<0.05
Incremental fit measures		
Adjusted goodness-of-fit index (AGFI)	0.87	>0.80
Tucker-Lewis index (TLI)	0.95	>0.90
Normal fit index (NFI)	0.93	>0.90
Comparative fit index (CFI)	0.95	>0.90
Parsimonious fit measures		
Parsimonious normed fit index (PNFI)	0.75	The higher, the better
Parsimonious goodness-of-fit index (PGFI)	0.67	The higher, the better

Tab.6- Factor Correlation Matrix

Factor	Structural Bond	E-Trust	Aff. Commitment	E-Satisfaction	Cont. Commitment
Structural Bond	1.000				
E-Trust	0.160	1.000			
Affective Commitment	0.212	0.499	1.000		
E-Satisfaction	0.601	0.285	0.364	1.000	
Continuance Commitment	-0.104	0.427	0.571	0.068	1.000

Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization.

Tab. 7- Standardized parameter estimates of hypothesized paths

Path	Hypotheses	Co-efficient Estimate	Standard Error	t-value	p-value
Structural Bond => E-satisfaction	H1	0.483	0.053	9.159	p<0.001
Structural Bond => E-trust	H2	0.213	0.051	4.151	p<0.001
E-satisfaction => Affective commitment	H4	0.217	0.062	3.512	p<0.001
E-satisfaction => Continuance commitment	H5	-0.010	0.072	-0.139	NS
E-trust => Affective commitment	H6	0.463	0.054	8.640	p<0.001
E-trust => Continuance commitment	H7	0.517	0.062	8.317	p<0.001

NS: Not Significant

5. Contributions and future research

5.1 Theoretical Contributions

In fact structural bonding of e-tailing is theoretically important and it has strong roots in the context of relationship marketing. Thus findings of our study make important contributions to the e-commerce literature by investigating the effect of structural bond on e-satisfaction, e-trust and customer's commitment. This is addition in the e-tailing literature through examinations of student's segment as a unit of study.

5.2 Managerial contribution

This study provides meaningful information for e-tailers to manage their customer relations in China. Thus e-tailers may need to cultivate structural bond effectively to manage their students segment of customers in e-tailing. On the basis of our empirical results, the following implications can be formulated for e-tailing managers.

Firstly, in the online retailing environment e-tailers can enhanced the satisfaction and customers trust through implementing structural bond for online shoppers. Secondly, in our study males are 58% and females are 42%. Therefore, e-tailers can concentrate equally on both types of e-tailing customers. Thirdly, in our study structural bond is strongly associated with e-satisfaction as compared to the e-trust. Thus managers can capitalize and extend e-satisfaction and turn it into e-trust and customer's commitment.

6. Conclusion, limitations and future research directions

We examined the effects of structural bond on e-satisfaction, e-trust and customer's commitment. Particularly, we used a structural equation model (SEM) to empirically investigate how e-tailing structural bond impacts on customer's commitment through moderating role of e-satisfaction and e-trust.

Our study reveals several limitations. First, we used a paper based survey to collect data from students that is bit complicated for them. Second, sampling frame includes universities students that may lead to loss of generalizability of results. Third, dependent variable in the hypothesized model, e-satisfaction, e-trust and customer's commitment are likely to be influenced by other variables which were not the specific object of this study. Therefore, future studies might be conducted to examine the complementary and interactional effects of structural bond in the same area or some other product classifications and industries.

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