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Consumers Trust in Online Shopping: The Case of Singapore

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Abstract: The emergences of the Internet and World Wide Web have changed the way businesses ply their trades. Many organizations now have established an online presence, particularly businesses that provide products or services directly to consumers, the so-called business-to-consumer (B2C) e-business. Trust is an important component for the continued viability and success of online businesses, as unlike traditional businesses, consumers do not have physical contact with the products to evaluate their suitability and quality. In this paper, we adopt the trust model constructed by Lee and Turban [7] to study how the drivers of trust in B2C e-commerce would affect the level of trust consumers have in online shopping in Singapore. We will also investigate if there are any moderating effects due to consumer' trust propensity on the relationship between each trust driver and consumer trust in online shopping. Our results show that most of the trust drivers identified by Lee and Turban have a positive effect on the level of trust on online shopping and trust propensity also has a moderating effect on the relationship between the trust drivers and consumers' trust in online shopping.

I. Introduction

The emergences of the Internet and World Wide Web and the rapid growth of the number of Internet users have changed the way businesses ply their trades. Due to higher scalability, wider market reach and lower costs, many organizations have established an online presence, particularly business that provide products and services directly to the consumers, the so called business-to-consumer (B2C) e-business.

According to Internet World Stats, the number of Internet users in Singapore has grown from 1.2 million in year 2000 to 2.135 million in 2005 [11]. But according to a survey of Singapore Internet Project in 2001, it was still quite rare for a Singaporean Internet user to make purchases online for personal purposes, only 8.1% did so in the past 12 months [12]. The risks involved in online purchases could be a possible reason for the low number of Internet users to make online purchases. Consumers generally perceive risks associated with online shopping to be higher than traditional shopping in physical stores as the products and services provided by online vendors are virtual, intangible and

heterogeneous and assessment of their suitability and quality is inherently difficult and uncertain ([2], [4], [9]). Furthermore, the 'invisible' nature of e-business may give rise to opportunistic negative behaviors such as overcharging to increase sales volume ([3], [10]). Thus, trust in online buyer-seller relationship plays a crucial role in the success of online business and it has gradually become an essential competitive tool in B2C e-commerce and is deemed critical for the success of e-commerce ([1], [5]). Furthermore, "lack of trust is one of the most frequently cited reasons for consumers not purchasing from online shops" [7]. Thus, it is important to know the factors that influence consumers' trust in online shopping so that trusting relationships can be developed between sellers and buyers. This would very likely lead to higher profits as consumers "with a higher level of trust in e-commerce are more likely to participate in e-commerce" [2] and purchase more items online more frequently.

Past researches have extensively examined, in both conceptual and empirical frameworks, the various drivers of consumer trust in online shopping. In this study, we would adopt the trust model proposed by Lee and Turban [7] (with some slight modifications) to determine the effects of the various trust drivers on consumers' trust in online shopping and also to determine the moderating effects of trust propensity of consumers could have on the relationship between each trust driver and consumer trust in online shopping in the Singapore context.

II. Literature Review

Past researchers have used both the conceptual and empirical approaches to study the drivers of trust in online shopping. Studies on trust using the conceptual approach can be found in [1], [5], [8] and [10], while those using the empirical approach can be found in [2], [3], [4], [6], [7] and [9].

The general notion of trust has been examined and discussed extensively in the past in different disciplines such as sociology, psychology and marketing [4], [7]. However, trust in e-commerce has only been explored recently. Lee and Turban define trust in e-commerce as "the willingness of a consumer to be vulnerable to the actions of an Internet merchant in an Internet shopping transaction, based on the expectation that the Internet merchant will behave in certain agreeable ways, irrespective of the ability of the consumer to monitor or control the Internet merchant" [7], while

Kolsaker and Payne define trust as “the dimension of a business relationship that determines the level to which each party feels they can rely on the integrity of the promise offered by the other” [6]. In general, it is recognized that trust in e-commerce is a complex process and multi-dimensional as it involves not only trust between humans but also trust between humans, machines and the ‘invisible’ entity Internet. As stated in [7], online shopping “involves trust not simply between the Internet merchant and consumer, but also between the consumer and the computer system through which transactions are executed”.

The trust model proposed and tested by Lee and Turban [7] is adopted in this study. The components that influence consumers’ trust in online shopping in the model include trustworthiness of the Internet merchant, trustworthiness of the online shopping medium, online shopping contextual factors, other factors and trust propensity.

‘Trustworthiness of the Internet Merchant’ involves assessing the ability, benevolence and integrity of the online seller, which collectively represent its reputation [7]. Ability refers to the online vendors’ competence in achieving the results desired by the consumers and benevolence involves the online vendors’ motivation to act in the interest of their online customers. Integrity reflects the vendors’ honesty and dependability in fulfilling their promises and obligations ([1], [3], [8]). An online vendor that is consistently willing and able to serve consumers’ interest is likely to be rewarded with a high level of consumer trust. Thus, ability, benevolence and integrity of online merchants are expected to positively affect the level of consumer trust in online shopping. In this study, we will examine the effects of perceived ability, benevolence and integrity of online vendors could have on Singaporean consumers’ trust in online shopping.

‘Trustworthiness of the online shopping medium’ refers to the level of confidence consumers have with respect to the technical competence and performance level of the IT infrastructure, for example, computer system through which online purchases are transacted [2], [7]. The technical competence of a computer system involves its ability to correctly perform the required and intended tasks, and its performance level is measured by its speed, reliability and availability [7]. With the use of technically competent and high performance computing system, it is expected that the level of consumers’ trust in online shopping will increase and this expectation is supported by findings in [2].

‘Online shopping contextual factors’ deal with issues about Internet security and privacy in building trust between online sellers and consumers. In particular, several studies have looked at the effects of security and privacy assurances by third-party certifications have on the level of online consumers’ perceived risk and trust. Assurances provided by third-party certifications could appear as tangible cues or quality symbols on websites that exemplify the various legal or regulatory impositions put in place to ensure favorable conditions for successful e-commerce ([1], [8]) and may reinforce the trust relationship that has already been

established between the online vendors and their customers [6]. Hence, third-party security and privacy certification is expected to increase consumers’ level of trust in online shopping. However, this expectation is not supported by the findings in [7].

‘Other factors’ that may influence consumers’ trust in online shopping that are not included in the above three components include website design/infrastructure, size and reputation of online vendors. In B2C e-commerce, the vendor’s website is the main interaction channel through which the vendor maintains contact with its customers, hence the website quality, the layout, appeal and ease-of-use are possible factors that may play a role in influencing consumers’ trust ([1], [2], [5]). Quality websites help alleviate the perceived risks in online shopping and consequently it is expected that website quality will positively affect consumer trust in online shopping and this expectation is supported in [2]. Chen and Dillion indicate that “characteristics such as firm size, number of years that a firm has been in business, reputation, and brand recognition are considered important in influencing a customer’s trust towards an online vendor” [1], hence online vendors that are huge in size are perceived to have attain their size by having high level of commitments to safeguard its reputation and provide services to their customers and this will positively affect consumer trust in online shopping.

Another component of the trust model is ‘trust propensity’. Trust propensity is a personality trait [7] that represents a person’s consistent natural tendency to depend or rely on others on how much to trust in various situations. Consumers with high trust propensity generally regard others as good-natured and reliable, and believe that better outcomes could be achieved by treating others as though they had meant well. Hence, it is expected that trust propensity would have a moderating effect on the four components of the trust model and it is likely that the effect is a positive one.

III. Methodology

A survey with self-administered survey questionnaires was conducted to gather the necessary information for the study. The survey questionnaires were adapted mainly from [7] and [2] to suit the purposes of this study. The various constructs in the proposed trust model are measured using the 5-point Likert-type scale items.

A pilot study with 15 National University of Singapore students was first conducted to assess the clarity and accuracy of the survey questions. The questions were generally seen to be clear and unambiguous by the respondents and only minor modifications were done to the questionnaires. Subsequently, a street survey was conducted outside a major public transportation station. Every fifth person that passed by the station was approached and asked whether he or she has ever accessed the Internet before and only those who answered positively were requested to complete the questionnaires. A total of 208 responses were

obtained.

Based on the model we have adopted, the possible hypotheses are that the attributes of the four components of the trust model are expected to have positive effect on consumer trust (CT) in online shopping. That is, perceived ability (PA), perceived benevolence (PB), perceived integrity (PI) of the online merchant, technical competence (TC), performance level (PL) of the online shopping medium, third-party certification (TPC), website quality (WQ), size of online vendor (SZ) and reputation of online vendor (RP) would affect positively on consumers' trust in online shopping. Also, trust propensity (TP) is hypothesized to have a positive moderating effect on the relationship between all the abovementioned attributes and consumer trust in online shopping.

A regression model is used to assess the relationships between consumer trust in online shopping and the various attributes of the trust drivers:

$$CT = \beta_0 + \beta_1(PA) + \beta_2(PB) + \beta_3(PI) + \beta_4(TC) + \beta_5(PL) + \beta_6(TPC) + \beta_7(WQ) + \beta_8(SZ) + \beta_9(RP) + \varepsilon \tag{1}$$

where β_i is the regression coefficient that measures the effect of the i -th attribute on consumer trust and ε is the random error term.

A regression model is also used to assess the moderating effects of trust propensity of consumers could have on the relationship between each trust driver and consumer trust in online shopping. The average score of the two items used to assess trust propensity is used as a measure of the respondent's trust propensity. The moderating effect of trust propensity on each attribute of the trust drivers towards consumer trust is measured by the interaction between the attribute and trust propensity. The model used is as follows:

$$CT = \alpha_0 + \alpha_1(TPxPA) + \alpha_2(TPxPB) + \alpha_3(TPxPI) + \alpha_4(TPxTC) + \alpha_5(TPxPL) + \alpha_6(TPxTPC) + \alpha_7(TPxWQ) + \alpha_8(TPxSZ) + \alpha_9(TPxRP) + \varepsilon \tag{2}$$

where α_i measures the effect of trust propensity on the relationship between consumer's trust and the attributes of the trust drivers.

IV. Results

Altogether 208 responses were obtained, out of which 53% are males and 47% females. About two thirds of the respondents are above 21 years of age and about half of them have monthly allowance/income of \$1000 or less.

IV. 1 Relationship between Consumer Trust in Online Shopping and Trust Drivers

To assess the direct effects of the attributes of the trust drivers on consumer trust in online shopping, model (1) is used with the following results:

Table 1: Estimates of Effects of Attributes

Attribute	β_i	p-value
Ability	0.063	0.205
Benevolence	0.117	0.008*
Integrity	0.290	0.000*
Technical Competence	0.028	0.276
Performance Level	0.119	0.022*
Third-Party Certification	0.222	0.000*
Website Quality	0.475	0.000*
Online Vendor Size	0.049	0.091
Online Vendor Reputation	0.112	0.000*

* significant at 0.05 level

The overall model is significant ($p < 0.05$) and about 88% of the variation in the levels of consumer trust can be explained by the model. Inspection of the residual plots and the normal probability plot for the residuals does not reveal any serious violations of the usual assumptions of regression model.

As seen from table 1, two attributes of the trustworthiness of Internet merchant, perceived benevolence and integrity, have significant effects on consumer trust, while perceived ability does not have significant impact on consumer trust. These results are consistent with the findings of Lee and Turban [7].

As for the trustworthiness of online medium, the attribute performance level is found to have a positive effect on consumer trust and this is similar to the finding in Corbitt et al [2]. But, the effect of technical competence is found to be insignificant and this result is contrary to that found in [2]. This could be because of the different methodology employed as the sample used in [2] is a voluntary sample through invitation by emails.

Third-party certification is found to have a significant positive effect on consumer trust in online shopping and this result is not consistent with the findings of Lee and Turban [7]. Again, this could be because of the different methodology used as a convenience sample is used in [7]. The quality of website and the reputation of the online vendor are also found to have significant positive impact on consumer trust in online shopping while the size of online vendor does not have a significant impact.

IV. 2 Moderating Effects of Trust Propensity

Model (2) is used to assess the moderating effects of trust propensity on the relationship between the trust drivers and consumer trust. The results obtained are as follows:

Table 2: Moderating Effects of Trust Propensity

Interaction between Trust Propensity and Attribute	α_i	p-value
Ability	0.011	0.561
Benevolence	0.003	0.814
Integrity	0.008	0.000*
Technical Competence	-	0.295
Performance Level	0.009	0.616
Third-Party Certification	0.067	0.000*
Website Quality	0.073	0.000*
Online Vendor Size	0.003	0.760
Online Vendor Reputation	0.027	0.007*

* significant at 0.05 level

The model is again significant and about 84% of the variation in the level of consumer trust in online shopping can be explained by the interactions between trust propensity and the attributes of the trust drivers. There are also no serious violations of the usual assumptions on the model.

The trust propensity of consumers is found to have a significant positive moderating effect on the relationship between perceived integrity of online vendors and consumer trust and this is in line with the finding in [7]. While for the other two attributes of trustworthiness of online merchant, trust propensity does not seem to have any moderating effects on them.

The trust propensity of consumers is found to have no significant moderating effects on the relationship between consumer trust and both attributes of the trustworthiness of online medium. Contrary to Lee and Turban [7], we find that trust propensity does have a significant moderating effect on the relationship between third-party certification and consumer trust. For the other factors, trust propensity has significant moderating effect only on the relationship between website quality and reputation of online vendor and consumer trust.

V. Limitations

The random sample obtained for this study included those who have accessed the Internet before, but no distinction was made whether they have made any online purchases before. The perceptions of trust between these two groups are likely to be different and the effects of the trust drivers on consumer trust could also be different. Perhaps, the differences between these two groups could be investigated further when the base of actual online consumers becomes larger.

The limited scale items used in this study to represent some of the constructs of the trust model may not fully reflect the complexities of the constructs. For example, consumer trust and reputation of online vendors are each

measured with a 1-item instrument and this may not accurately reflect the true level of trust and reputation.

The proposed trust model does not include the consequences of trust. Since the consequences of trust are related to consequences of risk taking, as pointed out in Lee and Turban [7], an understanding of trust that does not examine its relationship with risk is incomplete.

VI. Conclusions

This paper uses the trust model of Lee and Turban [7] to study the relationship between consumer trust and the four trust drivers, namely, trustworthiness of Internet merchant, trustworthiness of online shopping medium, contextual factors and other factors in the Singapore context. Though some of our findings are different from that in [7] and also that of Corbitt et al [2], there are also a lot of similarities between our results. The differences could be because of the different methodologies used in drawing samples and it could also be due to the differences between the societies in terms of willingness to accept new technologies, technical knowhow and the sophistication of Internet infrastructures.

Some of the results obtained here can be used as guidelines to build trusting relationships between online merchants and consumers. For example, in marketing and advertising activities, size of online vendor and its technical competence need not be emphasized since they do not seem to have any effect on consumer trust, whereas the performance of the vendor, its commitment to customers and perception of security by third-party certification should be emphasized. Also, trust propensity seems to have some moderating effects on some the trust drivers, hence it might be beneficial for online merchants to provide spaces on their websites for consumers to post comments and ratings on their products and services.

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