



A Study of Risk Perception Factors and their Interralationship in Online Shopping Behavior

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Abstract:

While online shopping has proliferated with the growth of the Internet, there have been insufficient research efforts concerning status of e-Commerce in India. The developed nations, in contrast, has made significant efforts in making empirical research on the consumer's perception of e-Commerce. This paper explores the consumer's attitude for online shopping using e-Commerce and risk perception factors. Perceived risk is an important barrier for online shopping among consumers who are involved in online shopping. Time and search risk, product related risk, quality risk and most important security risk hinders adoption of e-Commerce for online shopping. The main objective of the research was to find out perceived risks in online shopping and challenges for e-Commerce. It also focuses over the reliability and validity of the scale designed to measure the risk perception factor responsible for avoidance of online shopping using e-Commerce.

Keywords: *online shopping, Internet, e-Commerce*

1. Introduction

For the past many years use of internet is growing rapidly all over the globe. India is not exception from this wave. As reported by Morgan Stanley, India received \$6.6 billion in venture capital and private equity investment in 2015, a 50% increase from the previous year, which probably contributed to a steep growth in the gross merchandise value for ecommerce companies. There are 38.5 million Indians online as per the latest forecast from Internet and Mobile Association in India. The current growth rate is 54% and it is expected to accelerate further. Driven by the need to save time by urban India and ever-increasing population with internet access, the key growth drivers will be greater Internet penetration, a rise in the number of online shoppers and an increase in per capita income. The CRISIL report predicted market size of over Rs 504 billion for year 2016-17. Growth of Internet has made numerous resources on the Web instantly accessible to various user communities. The business community has also developed innovative strategies to expand their customer base using this technology (Ram *et al.*, 1999). Electronic Commerce (e-Commerce) presents huge opportunities for both consumers and businesses in the world. For example, online firms, which implement e-Commerce, deliver their products to markets through their ability to organize and maintain a business network, while traditional business models stress the ability to manufacture products and deliver services (Zwass, 1996). The online retail segment has evolved and grown significantly over the past few years. Cash-on-delivery has been one of the key growth drivers and is touted to have accounted for 50% to 80% of online retail sales. Players have adopted new business models including stock-and-sell, consignment and group buying; however, concerns surrounding inventory management, location of warehouses and in-house logistics capabilities are posing teething issues. (Ernst and Young, 2013). According to recent news in Business Standard, future group owned Big Bazaar has decided to shut

their online portal 'Big Bazaar Direct', on the ground of increasing customer acquisition cost along with other reasons. (Business Standard, Dated 29th August 2016).

These studies have all made important contributions to our understanding of the dynamics of online shopping field. Much research has been concentrated on the online shopping in the world. However, there is still a need for closer examination on the online shopping behaviour in developing countries like India. While both established and new, large- and small-scale businesses are now using the Internet as a medium of sales of their products and services (for example Dell computer, Amazon.com, in the world and jobstreet.com, rediff.com). Dewan and Kraemer (2000) and Clarke (2001) argued in their study that findings from developed countries are not directly transferable to developing countries. Thus, this research is needed for non-transferability of findings from research in developed countries like India, china, Brazil etc and also for the improvement of understanding relationship between perceived risk and attitudes for online shopping in developing countries.

Previous research suggests that perceived risk is an important ingredient in consumer Internet decision-making process. Donthu and Garcia (1999) found that Internet shoppers are less risk averse than Internet non-shoppers are. This distinction indicates that non-users are likely to perceive higher levels of subjective risk associated with Internet usage as compared with users. Nevertheless, Donthu and Garcia (1999) do not spell out specific risk components as perceived by consumers. An accurate identification of different perceived risk types is essential for Internet service providers. Understanding the barriers that inhibit use of potential buyers enables providers to employ suitable means that are intended to help consumers reduce risk levels (Jarvenpaa *et al.*, 2000). In turn, lowered perceived risk levels are expected to enhance consumers' responses in terms of purchase intention and actual sales (Mitchell *et al.*, 1999).

Perceived risk is the uncertainty that consumers face when they cannot foresee the consequences of their purchase decisions (Schiffman *et al.*, 2007). It reflects customer's subjective belief about the probability of a negative outcome from any purchase decisions in terms of functional risk, physical risk, financial risk, social risk, psychological risk, time risk. Consumer perception of these risks varies, depending on the person, the product category, the shopping situation and also with the culture. Perceived risk also said to influence the consumer's likelihood of trying new products or services.

One of the important barriers for online consumers is consumers' perceived risk. One of the study defined perceived risk as a consumer's belief about the potential uncertain negative outcomes from the online transaction. Various types of risk have been identified after the concept of perceived risk appeared in the marketing literature (Jacoby and Kaplan, 1972; Peter and Ryan, 1976; Zikmund and Scott, 1973). Jacoby and Kaplan (1972) identified seven types of risks: Physical, psychological, financial performance, time, social, and opportunity cost risk. Three types of risk are predominant in the case of web shopping: financial risk, product risk, and information risk (Bhatnagar *et al.*, 2000). Financial risk, including opportunity cost and time, is related not to the product but to the marketing channel (the Internet); for example, the online transaction may be duplicated because of technological error or unintended double-click the purchase button. Product risk is associated with the product itself; for example, the product may turn out to be defective. Information risk is associated with transaction security and privacy. The requirement that a consumer submits credit card information through the Internet can evoke apprehension due to the possibility of credit card fraud (Fram and Grady, 1997).

A consumer's perceived risk has been found to influence his or her online decisions (Antony *et al.*, 2006). It is common for a customer who is making an online transaction to be reluctant to purchase on the Web because the sense of risk may be overwhelming when compared to the traditional mode of shopping. In the case of a brick-and-mortar retail store (e.g., Wal-Mart), consumers can walk into the

store and usually touch, feel, and even try the product before deciding whether to purchase it. This immediately reduces the amount of perceived risk, and probably strengthens customers' positive opinions about the brick-and-mortar stores. In contrast, when purchasing from an Internet store, a customer has to provide substantial personal information, including address, phone number, and even confidential credit card information. After providing the necessary information, the shopper can only hope that the transaction will be processed completely and accurately. In most cases, he or she has to wait for days until the product or service is delivered, and the transaction completed. Thus, it should not be surprising that consumers will be attentive to risk in online transactions, and such risk may influence their decisions about whether or not to purchase from an online vendor.

In light of these facts, this paper tries to study relationship between Shoppers' attitudes towards online shopping and perceived risks.

2. Conceptual Model

A literature review of consumer behavior largely focused on perceived risk concept (Cox and Rich, 1964). Its centrality is due to its multidimensional nature. Traditionally, it is common to decompose overall perceived risk to different species as financial, physical, psychological (or mental), and social (Bettman, 1973). Following Dekimpe *et al.* (2000), it seems that for Internet and other hi-tech items product group specific technological risk (fear of technologically complicated innovations) can be added to the list.

Many studies have indicated a relationship between the risk perception of a new shopping channel and the choice of purchasing using that channel (Bhatnagar *et al.*, 2000). Tan (1999) found that risk-averse consumers are less likely to use Internet shopping and online purchasing over the Internet is perceived as higher risk by consumers. Vijayasathy and Jones (2000) found that consumer risk influenced both attitudes towards online shopping and intention to shop online. However, Attitudes toward online shopping is influenced by consumer risk, but the intention to shop online is not influenced by consumer risk (Jarvenpaa and Todd, 1997). Donthu and Garcia (1999) found that Internet shoppers are less risk averse than Internet non-shoppers are. This distinction indicates that non-users are likely to perceive higher levels of subjective risk associated with Internet usage as compared with users. But their research does not spell out specific risk components as perceived by consumers.

Various types of risk are perceived in purchase decisions, including product risk, security risk and privacy risk. Product risk is the risk of making a poor or inappropriate purchasing decision. One aspect of product risk is the risk of a poor economic decision through an inability to compare prices, being unable to return a product, or not receiving a product paid for (Jarvenpaa and Todd, 1997; Vijayasathy and Jones, 2000). Another aspect involves product performance and is associated with the risk that a product will not function as expected (Bhatnagar *et al.*, 2000; Jarvenpaa and Todd, 1997; Vijayasathy and Jones, 2000). This relates to the lack of opportunity to examine products prior to purchase (Tan, 1999). Bhatnagar *et al.* (2000) suggest that with increasing product risk, the likelihood of purchasing on the Internet decreases. George (2002) found that beliefs about the trustworthiness of the Internet were associated with positive attitudes toward Internet purchasing.

Other dimensions of consumer risk concern the medium of the Internet itself, rather than the consequences of purchasing a particular product. They are related to consumers' perceptions and beliefs about the Internet as a trustworthy shopping medium (Bhatnagar *et al.*, 2000; Lee and Turban, 2001). A common perception among consumers is that communicating credit card information over the Internet is inherently risky due to the possibility of credit card fraud (Bhatnagar *et al.*, 2000; George, 2002; Furnell and Karweni, 1999; Hoffman *et al.*, 1999; Jarvenpaa and Todd, 1997; Jones and Vijayasathy, 1998). In a survey of US online shoppers, Ranganathan and Ganapathy (2002) found

that security was a major factor in discriminating between high and low intentions to purchase online. However, Swaminathan *et al.* (1999) reported that consumers in their study seemed less concerned about the security of online transactions.

Apart from concerns about the security of Internet transactions, Internet trustworthiness seems also to relate to consumers' concerns about privacy. These concerns include the unauthorized acquisition of personal information during Internet use or the provision of personal information collected by companies to third parties (George, 2002; Furnell and Karweni, 1999; Hoffman *et al.*, 1999; Wang *et al.*, 1998). Hoffman *et al.* (1999) suggest that with increasing privacy concerns, the likelihood of purchasing online decreases. They also suggest that a large number of Internet consumers do not trust Web providers enough to exchange personal information with them. Swaminathan *et al.* (1999) found that consumers who purchased more on the Internet were more concerned about the creation of privacy laws. Introna and Pouloudi (1999) study shows that privacy attracts considerable attention as increasing amounts of information flow through various electronic communication Channels. Miyazaki and Fernandez (2001) maintain that privacy and security risk perceptions are the major obstacles in the development of consumer related e-Commerce activities.

As suggested by Lee and Turban (2001), two main categories of perceived risk emerge in the process of online shopping. The first is the perceived risk associated with product/service and includes functional loss, financial loss, time loss, opportunity loss, and product risk. The second is the perceived risk associated with context of online transactions, and includes risk of privacy, security, and no repudiation. Among them, the influence of financial risk, product risk, and concern for privacy and security are significant (Senecal, 2000; Borchers, 2001; Bhatnagar *et al.*, 2000). Alreck and Settle (2002) found that internet shopping was viewed as saving more time than traditional modes of shopping. Bhatnagar *et al.*, (2000-2001) found that for those who use online information sources of buying financial products, time availability was not associated with the propensity to conduct and online search for or purchase of these products. Jarvenpaa *et al.*, (2000) investigate how consumers' perceived store size and reputation influence their trust in the store, risk perception, attitudes and willingness to buy at the specific store. The study found that there is a positive correlation between consumer trust in internet stores and the store's size and reputation. Consumer with higher trust may reduce perceived risk associated with internet shopping and thus, this will eventually generate more favorable attitude towards shopping at the particular store and this lead to willingness to buy from the store.

From the literature study following conceptual model can be suggested for the study. There are five types of risk perception factors considered in the model after rigorous expert review study. The model described in figure 1.



Figure 1 Proposed Conceptual Model

3. Objectives

The objectives of this study were to examine the relationship of risk factors in attitude for online shopping. This study further investigates the scale developed for risk perception measures of online shopping behavior and their interrelationship with reliability and validity. It would also test the model for development of online shopping attitude. For managers of e-Commerce company, it is crucial to know the consumer attitude development process and buying behavior. Risk perception factors pertaining to online shopping behavior and attitude development could ease the job of manager to pursued the consumer.

4. Research methodology and data collection

The field survey method was conducted for data collection. Total 120 respondents were contacted using the nonprobability convenience sampling method. It was ensured that the variability within the population of interest is represented through sample. Consumers were contacted for the probably accurate responses. The data was collected from Ahmedabad city of Gujarat, India. According to Sekaran (2003), this method is quite common in business and management research as this can ensure a high response rate comparative to probability sampling method, which involves a lot of difficulty and costs, the population in this type of studies remains unknown and infinite.

The target population for this study consisted of user or non users, online shoppers through e-Commerce websites. A self-administered questionnaire was developed to collect information from the respondents. After contacting 120 respondents, 100 completed questionnaires were returned.

Table:1 Respondents' Profile

Gender	Frequency
Male	60
Female	40
Age (Years)	
<25	26
25-35	56
35 and above	18
Education	
Till Graduate	51
Till PG	49
Family Income (Rs.)	
<30000	35
30000-60000	29
60000-100000	36
Source: Data Analysis	

The demographic information of respondents like, gender, age, education and family income were also collected. Respondents were mostly between the age groups of 20 to 40 years, the mean age was 30 years with standard deviation of 6 years. Almost 49 of the respondents were post graduates and the monthly family income was varying from Rs. 20,000 to 1, 00,000.

A structured questionnaire was developed to measure the risk perception factors considering online shopping behavior. The questionnaire consisted of questions concerning risk perception factors constructs, and demographic information of respondents. Total 16 items were developed to measure the risk perception factors. All items were adapted from or developed based on prior research. The items were refined through expert opinion. The items were measured using five point Likert- scales in which respondents were asked to indicate their level of agreement (1 = strongly disagree to 5 = strongly agree).

The sixteen items of five risk perception factors and attitude constructs such as Time and search risk, Product related risk, Security risk, Perceived quality risk, Social Risk and online shopping attitude were employed. Time and search risk and Security risk were measured by three items each. Product related risk and attitude for online shopping were measured with two items each. Percieved quality risk was measured with four items. Two items regarding social risk were dropped after factor analysis.

5. Data Analyses and Results

5.1 Exploratory Factor Analysis

According to Hair *et al.* (2010) and Sekaran (2003), exploratory factor analysis was conducted using the principal component method and varimax rotation at the initial stage of analysis using SPSS. In this study, the result of Bartlett's test of sphericity (0.000) and KMO (0.681) were found significant after conducting initial analysis on sixteen items. The result indicate that the data were appropriate for factor analysis. In the analysis only the factors having latent roots or eigenvalue greater than 1 were considered significant. Total five factors were extracted during this stage of exploratory factor analysis. All the five factors together accounted for 66 percent of the total variance. These five factors were Time and search risk, Product related risk, Security risk, quality risk and online shopping

attitude. Social risk was dropped from further analysis as corresponding items were cross loaded on the factors. The two items were deleted for the further analysis. After deleting the two items, again exploratory factor analysis was conducted on fourteen items to analyze the factor loading, which was given significant result.

5.2 Confirmatory Factor Analysis and Structural Model Assessment

In order to validate the measurement scale of the risk perception factors and attitude for online shopping identified in the exploratory factor analysis, further confirmatory factor analyses was conducted (Hair *et al.*, 2010). Total fourteen measurement items, and five-dimension confirmatory factor analysis was performed using AMOS. The results of the confirmatory factor analysis mentioned in the table.

All 14 measurement items and five variables used to measure risk perception factors and online shopping attitude developed in the pretest were subjected to a confirmatory analysis using AMOS 16. These properties were overall fit of the measurement model. According to Hair *et al.* (2010) fit indexes like, the ratio of chi-square to degrees of freedom, the goodness-of-fit index (GFI), adjusted GFI (AGFI), the normed fit index (NFI), Tucker-Lewis Index (TLI), Incremental Fit Index (IFI), and the Relative Fit Index (RFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) were used to quantify the model fit.

The chi-square associated with model was 98.66 (df= 67, p=0. 007), the likelihood ratio chi-square (CMIN/DF ratio), a value below 2 is preferred was 1.473, which was as per the recommendations for model fit. The Goodness of Fit Index (GFI) an absolute fit index and Adjusted Goodness of Fit Index (AGFI), a parsimony fit index was 0.876 and 0.806 respectively, these values are according to guidelines as higher values indicate better fit. The values are influenced by sampling considerations and deviations from normality, the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) are often recommended because they are considered strongly to these variations. Advocated fit levels for these indexes are in the 0.9 region, and for these data the CFI was 0.880, it near to the minimum (≥ 0.90) for a model of this complexity and sample size. CFI further represents the improvement of fit of the specified model over a baseline model in which all variables are constrained not to be correlated. The TLI was 0.837, which is also as per the recommendation of the model fit. Furthermore, the NFI, RFI and IFI are other incremental fit indices, according to the guidelines these values must be larger enough (0 – 1.0), which were found as per the guideline of indices.

Root Mean Squared Error of Approximation a value of 0.10 or less is considered acceptable. RMSEA also known as Badness-Of-Fit index represents the degree to which lack of fit is due to misspecification of the model tested versus being due to sampling error. The RMSEA, an absolute fit index, was 0.069. This value is quite low and well below the 0.10 guideline for a model with 14 measured variables and adequate sample size.

Using the RMSEA and the CFI satisfies the condition that both a badness-of-fit index and a goodness-of-fit index be evaluated. In addition, other index values also are supportive. Therefore, further model can be examined with its validity and reliability.

Table: 2 Model Fit Indexes

Model Fit Indexes	
Ratio of chi-square to degrees of freedom	1.473
Goodness-of-fit index (GFI)	0.876
Adjusted GFI (AGFI)	0.806
Normed fit index (NFI)	0.722
Tucker-Lewis Index (TLI)	0.837
Incremental Fit Index (IFI)	0.890
Relative Fit Index (RFI)	0.622
Comparative Fit Index (CFI)	0.880
Root Mean Square Error of Approximation (RMSEA)	0.069
Source: Confirmatory factor analysis	

5.3 Reliability and Validity

The reliability of constructs explains internal consistency, various measures can be applied to identify the reliability. Cronbach's alpha is widely used statistics to measure the reliability of given scale (Hair *et al.*, 2010; Sekaran, 2003). Overall, the reliability of the scale was 0.807, as the result was more than 0.6 it shows reliable scale measures. From the table 3, values of Cronbach's alpha it can be concluded that all the constructs of risk perception factors and online shopping attitude were found reliable.

As discussed by Hair *et al.* (2010), factor loadings are the first thing to look at in examining convergent validity. Convergent validity can be accessed from the measurement model by determining whether each indicator's estimated maximum likelihood loading on the underlying construct is significant. According to the literature, all standardized loadings estimates should be at least 0.4, and preferably 0.7 or higher. From the table 3, we can conclude that all the loadings were significant as per the requirement of convergent validity. The lowest loading was 0.458 and other items of various constructs of risk perception factors and online shopping attitude were either near to 0.7 or above. Therefore, It has evidence of convergent validity for all the constructs of risk perception factors and online shopping attitude.

Table: 3 Convergent validity

Factors	Items	Factor Loading	Cronbach's alpha coefficient	Construct Reliability	Variance Extracted
Online Shopping Attitude	It15	0.809	0.703	0.761	0.614
	It16	0.757			
Time and Search Risk	It1	0.665	0.645	0.766	0.524
	It2	0.696			
	It3	0.803			
Percieved Quality Risk	It9	0.458	0.669	0.794	0.503
	It10	0.823			
	It11	0.848			
	It12	0.637			
Security Risk	It6	0.794	0.767	0.848	0.651
	It7	0.789			
	It8	0.837			
Product Related Risk	It4	0.839	0.732	0.774	0.632
	It5	0.748			

Source: Confirmatory factor analysis (It13 and It14 were dropped from analysis)

The second measure of convergent validity is constructing reliability, which is mentioned as construct reliability coefficient in the given table. Construct reliability estimate is 0.7 or higher suggests good reliability, whereas reliability between 0.6 and 0.7 may be acceptable provided that other indicators of a model's construct validity are good. A high construct reliability indicates that internal consistency exists (Hair *et al.*, 2010). From the table 3, it can be identified that all the composite reliability coefficients are greater than 0.7, which indicating reliability as well as construct validity of the factors. The third measure of convergent validity is variance extracted, which can be calculated as the sum of the squared standardized factor loadings divided by the number of items of each construct. According to Hair *et al.* (2010), variance extracted estimates show how variances are measured compared to random measurement error. The average variance extracted should be 0.5 or higher indicates adequate convergent validity. There is indication of error in the itmes if variance extracted found less than 0.5. The table 3 describes that, all variances extracted were above 0.50, which verify the validity of the constructs. The factor loading, construct reliability, the average variance extracted along with Cronbach alpha coefficient measurements for all risk perception factors of online shopping, significant fall in the satisfactory limit. It can be concluded that, all the measurement items of constructs were consistent and there were less chances of occurrences of error.

Table: 4 Discriminant validity

Pair of Constructs	Squared inter construct	Average of AVE
Online Shopping - Security Risk	0.049	0.632
Online Shopping - Percieved Quality Risk	0.106	0.558
Online Shopping - Security Risk	0.013	0.632
Online Shopping - Time and Search Risk	0.000	0.569
Product Related - Percieved Quality Risk	0.425	0.568
Product Related - Security Risk	0.095	0.642
Product Related - Time and Search Risk	0.000	0.568
Percieved Quality - Security Risk	0.026	0.577
Percieved Quality - Time and Search Risk	0.001	0.503
Security Risk - Time and Search Risk	0.212	0.577

Source: Confirmatory factor analysis

Hair *et al.* (2010) mentioned in their book that, more rigorous test of discriminant validity assesses whether, all construct average variance extracted estimates should be larger than the corresponding square of inter construct correlation estimates. The average variances extracted were compared with the square of correlations of constructs in the table 4. All the value of square of inter correlations was lower than corresponding average variances. It indicates that the items have more in common with the construct they are associated with than they do with other constructs. Therefore, the model developed for online shopping attitude and risk perception factors demonstrates discriminant validity. Nomological validity is tested by examining whether the correlations between the constructs in the measurement model make sense (Hair *et al.*, 2010). The construct correlations are used to assess this. To demonstrate nomological validity in the model the correlations of construct were observed for its significance. The correlation of the constructs was found positive and significant for 0.05 levels.

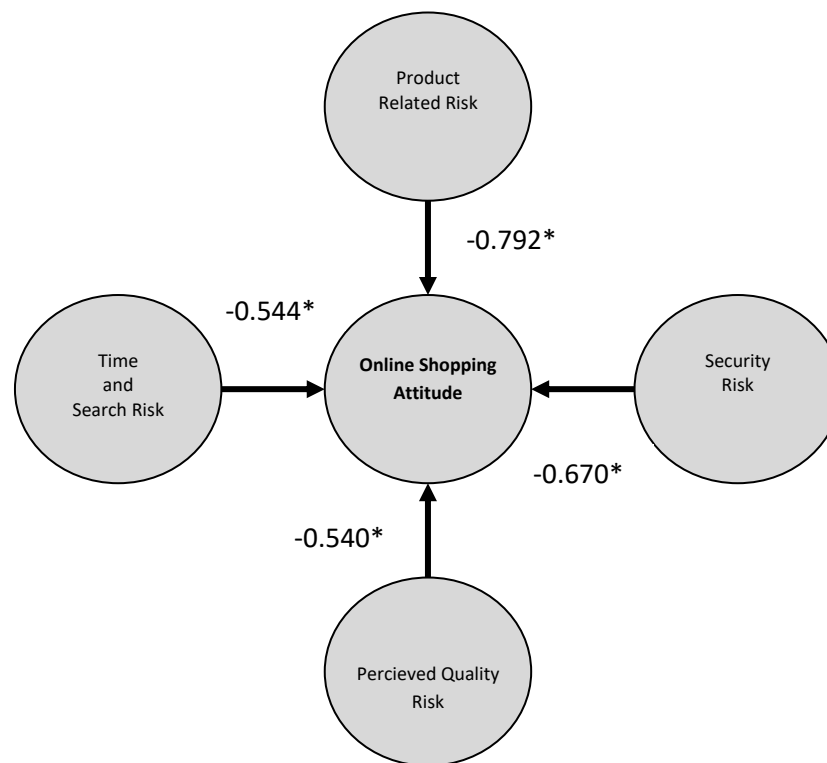


Figure 2 Shopping Attitude Model (* Significant at 0.05)

6. Discussion and conclusion

As discussed above, four risk perception factors and online shopping attitude have been extracted with the help of exploratory factor analysis. Confirmatory factor analyses successfully validated the items used to measure these five variables. Factors like Time and search risk, Product related risk, security risk and perceived quality risk were identified as effective risk perception factors for development of online shopping attitude. The result of structural equation modeling indicates there is significant ($p < 0.05$) negative relationship of risk perception factors on development of online shopping attitude among the consumers.

According to results the security risk was the biggest fear of online shopping with the threat of third-party fraudulent behavior specifically the fear of having one's credit card information being stolen. The consumer fear that gained the most attention was that of unauthorized access to credit card information or payment information. The privacy concerns regarding personal information and the perceived fraudulent behavior of online retailers discourage consumers in adoption of e-commerce.

As the product related risk of online shopping also received as factor influences on online shopping attitude. The consumer experiences product risk when he/she cannot directly see or touch, feel product in the electronic market, this resulted in anxiety or uncertainty when he has transactions with online vendors. Their fear of functional risk as product delivered to consumers may not perform as expected. The consumers may be required to bear the expenses such as shipping and handling, when returning or exchanging the product. Such issues remains unanswered for firms engaged in online shopping. The long term experience and trust may lead to resolved the issue and reduces the product related risk.

When the purchased products fail, consumer feels he may waste time, convenience, and effort getting it adjusted or replaced. The time is non-monetary effort and varies among individuals, but it recognized as cost that consumers must pay for products search. Time loss as an additional risk with the product. The time and efforts consumer spend on search online and purchase the product may

resulted in time and search risk to them. This may improved through consumer education and design of website for online purchase.

The quality of information, quality of product and quality of services together develop the fear of perceived quality risk to consumers for development of online shopping attitude. The expected quality and past experiences from their physical purchases hinders consumer from online shopping intention. If consumer's perceptions of risk taken care by the firms accurately than online shopping can have better performance in the market. If it happens than e-Commerce will certainly remain a acceptable in market for many firms and consumers. The spread of Internet services and e-Commerce experiences help online market to perform as per expectations.

7. Future Research Scope

Future research will be needed to assess the generalizability of our findings. The use of longitudinal design to examine the influence of risk perception factors on online shopping attitude in future research help to generalize the findings of the research. This could enhance the understanding of the consumer perceived risk and online shopping attitudes. Such longitudinal data would identify a more complete understanding of relationships between variables.

The participants in sample may not be representative of all consumers of e-Commerce. The familiarity with computer and internet restricts consumers from online shopping or even in development of attitude for it. The risk perception also influences on trust of individual consumer. The empirically analyzed model describes four type of risks time and search risk, product related risk, security risk, perceived quality risk and result suggest the negative relationship with online shopping attitude. The another factor named trust also could be tested for its relationship with attitude as well as intention and behavior. Although the model received strong empirical support, it would also like to recognize the possibility of alternative models for understanding the relationships among the constructs examined in study. According to the research of kim *et al.* (2008) trust, risk and behavior for e-Commerce were interrelated, the future research may consider how these alternative models of the relationships among trust and risk perception for attitude and purchase. The results of this study may be used as a platform for future research of interest to both academics and industry researchers who are interested in research on e-Commerce.

References

1. Alreck, P., & Settle, R. B. (2002). Gender effects on Internet, catalogue and store shopping. *Journal of Database Marketing & Customer Strategy Management*, 9(2), 150-162.
2. Antony, S., Lin, Z., & Xu, B. (2006). Determinants of escrow service adoption in consumer-to-consumer online auction market: an experimental study. *Decision Support Systems*, 42(3), 1889-1900.
3. Bhatnagar, A., Misra, S., & Rao, H. R. (2000). On risk, convenience, and Internet shopping behavior, *Communications of the ACM*, 43(11), 98-105.
4. Borchers, A. (2001). Trust in Internet shopping: A test of a measurement instrument. *AMCIS 2001 Proceedings*, 156.
5. Clarke, G. R. (2001). Bridging the digital divide: How enterprise ownership and foreign competition affect internet access in Eastern Europe and Central Asia. World Bank, Development Research Group, Regulation and Competition Policy.
6. Dewan, S., & Kraemer, K. L. (2000). Information technology and productivity: evidence from country-level data. *Management Science*, 46(4), 548-562.
7. Donthu, N., & Garcia, A. (1999). The internet shopper. *Journal of advertising research*, 39(3), 52
8. Farm, E. H., and Grady, D. B. Internet shoppers: is there a surfer gender gap?. *Direct Market* 59, 9, 1997, 46-50.

9. Furnell, S. M., & Karweni, T. (1999). Security implications of electronic commerce: a survey of consumers and businesses. *Internet research*, 9(5), 372-382.
10. George, J. F. (2002). Influences on the intent to make Internet purchases. *Internet Research*, 12(2), 165-180.
11. Hair, J. F., Jr., Anderson, R. E., Babin, B. J., and Black, W. C. (2010). *Multivariate Data Analysis*-(seventh ed.). New Jersey: Prentice Hall.
12. Hoffman, D. L., Novak, T. P., & Peralta, M. (1999). Building consumer trust online. *Communications of the ACM*, 42(4), 80-85.
13. Inrona, L., & Pouloudi, A. (1999). Privacy in the information age: Stakeholders, interests and values. *Journal of Business Ethics*, 22(1), 27-38.
14. Jacoby, J., & Kaplan, L. B. (1972). The components of perceived risk. In *SV-Proceedings of the third annual conference of the association for consumer research*.
15. Jarvenpaa, S. L., & Todd, P. A. (1996). Consumer reactions to electronic shopping on the World Wide Web. *International journal of electronic commerce*, 1(2), 59-88.
16. Jarvenpaa, S. L., Tractinsky, N., & Saarinen, L. (1999). Consumer trust in an internet store: a cross-cultural validation. *Journal of Computer-Mediated Communication*, 5(2), 0-0.
17. Juan Tan, S. (1999). Strategies for reducing consumers' risk aversion in Internet shopping. *Journal of Consumer Marketing*, 16(2), 163-180.
18. Jones, J. M., & Vijayasarathy, L. R. (1998). Internet consumer catalog shopping: findings from an exploratory study and directions for future research. *Internet Research*, 8(4), 322-330.
19. Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision support systems*, 44(2), 544-564.
20. Lee, M. K., & Turban, E. (2001). A trust model for consumer internet shopping. *International Journal of electronic commerce*, 6(1), 75-91.
21. Mitchell, V. W., Davies, F., Moutinho, L., & Vassos, V. (1999). Using neural networks to understand service risk in the holiday product. *Journal of Business Research*, 46(2), 167-180.
22. Miyazaki, A. D., & Fernandez, A. (2001). Consumer perceptions of privacy and security risks for online shopping. *Journal of Consumer affairs*, 35(1), 27-44.
23. Peter, J. P., & Ryan, M. J. (1976). An investigation of perceived risk at the brand level. *Journal of marketing research*, 184-188.
24. Ram, S., Park, J., & Lee, D. (1999). Digital libraries for the next millennium: Challenges and research directions. *Information Systems Frontiers*, 1(1), 75-94.
25. Ranganathan, C., & Ganapathy, S. (2002). Key dimensions of business-to-consumer web sites. *Information & Management*, 39(6), 457-465.
26. Schiffman, L. G., & Kanuk, L. L. (2000). *Consumer behavior*. 7th. edn., Prentice Hall International.
27. Sekaran, U. (2003). *Research Methods for Business: a skill-building approach*, (4th ed.). New York: John Wiley & Sons. Inc.
28. Senecal, S. (2000). Stopping variables in online buying processes: An innovation diffusion approach. In *Proceedings of the 6th Americas Conference on Information Systems* (Vol. 5, pp. 1380-1385).
29. Swaminathan, V., Lepkowska-White, E., & Rao, B. P. (1999). Browsers or buyers in cyberspace? An investigation of factors influencing electronic exchange. *Journal of Computer-Mediated Communication*, 5(2), 0-0.
30. Vladimir, Z. (1996). Electronic commerce: structures and issues. *International journal of electronic commerce*, 1(1), 3-23.
31. Wang, H., Lee, M. K., & Wang, C. (1998). Consumer privacy concerns about Internet marketing. *Communications of the ACM*, 41(3), 63-70.