

CHINESE CONSUMER PERCEIVED RISK AND RISK RELIEVERS IN E-SHOPPING FOR CLOTHING

Lili Zheng

Department of Information Systems
University of Grenoble - CERAG Research Center, France
lilizheng19@yahoo.fr

Marc Favier

Department of Information Systems
University of Grenoble - CERAG Research Center, France
Marc.Favier@upmf-grenoble.fr

Pei Huang

School of Management
Fudan University in Shanghai, China
Huangpei@fudan.edu.cn

Françoise Coat

Department of Information Systems
University of Grenoble, CERAG Research Center, France
Francoise.coat@iut2.upmf-grenoble.fr

ABSTRACT

Online perceived risk is an important issue in e-commerce. As China has a large Internet shopper population and online consumer spending continues to increase, better understanding Chinese online shoppers' perceived risk and risk reduction strategies becomes particularly relevant. However, research in the Chinese context is limited. Given this reality, the purpose of this study is to (1) identify and rank Chinese consumer online perceived risk; (2) investigate consumer preferences for methods of reducing risk; and (3) present a cluster analysis of e-shoppers based on their perceived risk score. Managerially, the study intends to provide e-marketers and e-retailers with an overview of risk as perceived by Chinese online shoppers and their risk reduction strategies. It also aims to demonstrate for managers the impact of this awareness on their competitiveness by illustrating how consumer types are related to different perceived risk dimensions and risk reliever strategies on the Internet. Some results from this study are consistent with previous studies, but it is interesting to note that certain findings are different. These differences might be explained by the specificity of the Chinese Internet shopping environment and Chinese culture. Cluster analysis regrouped the Chinese e-shoppers into five groups based on their perceived risk.

Keywords: Perceived risk, risk reduction strategies, classification, Chinese online clothing shoppers, e-commerce

1. Introduction

Internet has strongly impacted the global marketing environment and the Internet has provided companies with the ability to expand their business reach through e-commerce [Kailani and Kumar 2011; Vyncke and Brengman]. Despite the benefits of online commerce over traditional commerce and optimistic predictions for future growth of online shopping, negative aspects associated with this shopping mode are also becoming critical [Ko et al. 2004]. Exposure to new method of e-commerce transactions and information overload bring increased uncertainty for both new and experienced internet users [Angriawan and Thakur 2008; Kailani and Kumar 2011; Nugent and Raisinghani].

Consumers perceive a higher level of risk when purchasing on the Internet as compared with traditional forms of shopping. These perceived risks associated with online shopping in turn have a critical effect on consumer decision making. It is suggested that perceived risk is a powerful index for explaining consumer behavior since consumers are more often motivated to minimize potential failure than to pursue purchasing success [Mitchell 1999]. From a managerial standpoint, understanding consumer perceived risk and how consumers attempt to reduce these

risks is of great concern. Perceived risk, therefore, has become a hot topic of study for many researchers [Kalakota and Whinston 1996].

China is one of the countries that have shown the fastest information technology adoption trends. According to CNNIC¹ [2010], online shopping is becoming an important shopping mode in China. In 2008, online shopping market transactions accounted for 1.1% of total retail sales. The proportion rose to 2% in 2009, and increased to 3.3% in 2010. In 2010, annual online shopping transactions amounted to 523.1 billion yuan², increasing by 109.2% when compared with 2009. Meanwhile, the number of Chinese e-shoppers continues to grow; the rate of online shopping penetration continued to increase in 2010. As of December 2010, the online shopping penetration rate had reached 35.1% [CNNIC 2010]. There are 161 million online in china.

With such a large Internet shopper population and increasing online consumer spending, better understanding of online shopping risk as perceived by Chinese e-shoppers and risk reduction strategies used by these e-shoppers becomes particularly relevant. However, our review of the literature indicates that most previous research on perceived risk and risk relievers was conducted in the context of countries other than China, for example, Belgium [Van den Poel 1996]; India [Samadi and Yaghoob-Najadi 2009; Gupta et al. 2010]; the United States [Bauer et al. 1967; Roselius 1971; Toh and Heeren 1982; Hawes and Lumpkin 1986; Akaah and Korgaonkar 1988; Kim 2010] and Singapore [Tan 1999]. Research in the Chinese context is limited.

China differs fundamentally from other countries in terms of its e-shoppers' cultural backgrounds [Pavlou and Chai; Roselius 1971; Weber and Hsee 1998], and the technological and institutional online shopping environment, thus it is normal that perceived risk and risk reduction strategies used by these consumers may differ from that observed in other countries. Identifying these differences can help companies improve their online marketing strategies.

These arguments motivate investigating the following research questions: How do Chinese consumers perceive online shopping risk? What are their preferred methods for reducing risk? Are findings from research based elsewhere concerning the consumer' perceived risk and risk-reduction strategies applicable to the Chinese online shopping context? Should Internet companies provide different consumer groups specific risk reduction tools depending upon their risk perceptions? With these questions in mind, the purpose of this study is to investigate perceived risk dimensions of Chinese online consumers and their preferred methods for reducing risk. We also intend to examine how different Internet consumer types are affected by different perceived risk dimensions and their choices of risk reliever strategies. Finally, we hope to show *e*-marketers the importance of this awareness for their competitive advantage.

We start this paper with a brief literature review on perceived risk and risk reliever methods. Following this, we set forth our empirical results, obtained from a survey of Chinese online clothing product consumers. We then classify Chinese online consumers according to their perceived risk scores. The conclusion, the study's implications and directions for future research are discussed in the final section.

2 Literature Review

2.1 Perceived Risk Definition

Perception is defined as the process of selecting, organizing and interpreting information to create a significant image of the world [Kotler and Keller 2006, cited by Santana and Loureiro 2010]. According to the authors, perception is determined not only by the physical stimulus but also by the relation between the stimulus and the environment and by the internal conditions of the consumer. Therefore, perceptions may change among individuals face to the same reality.

A risky situation is one in which the outcome of a decision depends on the results of future events with known probabilities [Mandel 2003]. The concept of risk has a rich history in information systems and marketing. Since Bauer [1960] introduced risk-taking behavior in marketing literature as a possible measure of consumer attitude towards a purchase, perceived risk has been defined in several ways, with considerable debate concerning the merits of each point of view [Pires et al. 2004].

Bauer initially proposed the following concept of perceived risk [1960 p.24] "Consumer behavior involves risk in the sense that any action of a consumer will produce consequences which he cannot anticipate with anything

¹ China Internet Network Information Center

² Chinese currency is called Renminbi. The unit for Renminbi is *Yuan*, and also *Jiao* and *Fen*. The abbreviated symbol of Renminbi Yuan is RMB.

See <http://en.cnta.gov.cn/travelinchina/forms/travelinchina/Currency.shtml>

approximating certainty, and some of which at least are likely to be unpleasant". Following Bauer's [1960] proposition, perceived risk analyses in the context of consumer behavior agree on defining this construct as a combination of two components: the probability of loss and the subjective importance of that loss [Kogan and Wallach 1964; Cunningham 1967; Cox 1967a], indicated by Crespo et al. [2009]. As noted by Ross [1975] and Pires et al. [2004], risk is "a function of the importance or magnitude of the goals to be attained, the seriousness of the penalties that might be imposed for non-attainment, and the amount of means committed to achieving the goals" [Cox 1967a, p.38]. Perceived risk is a measure of possible or expected dissatisfaction with a buying decision, based on the purchase goals of the buyers.

While most subsequent research has employed these two specific dimensions (probability of loss and the subjective unfavorable consequences), others have applied a variant two-dimensional definition using uncertainty and importance [Schiffman 1972; Arndt 1967b in Ross 1975], while some use only uncertainty [Arndt 1967a in Ross 1975]. The conception of perceived risk advanced by Kogan and Wallach [1964], Cunningham [1967] and Cox [1967a] has been criticized by some researchers. For example, Sjöberg [1980] indicated that the concept of perceived risk proposed by Kogan and Wallach [1964], Cunningham [1967], and Cox [1967a] is too specific to cover such an ambiguous variable [Mitchell 1999]. Sjöberg notes three broad classes of meaning: those concerned with the probability of negative consequences, those concerned with these negative consequences themselves measured in some suitable way, and those concerned with a joint function of probability and consequences [Mitchell 1999]. Stone and Winter [1987] consider perceived risk as an expectation of loss. They view perceived risk as a subjective expectation of loss rooted in psychology, breaking away from the expectation-value orientation which is based on mathematics and economics [Mitchell 1999].

Ultimately, the weight of empirical research has favored Cunningham's [1967] two component definition. In this study we too, follow Cunningham's [1967] vision and we conceptualize perceived risk as the probability of loss from purchase via the Internet together with subjective importance of that possible consequence.

2.2 Online Shopping Risk Dimensions

Cunningham [1967] defined the concept of perceived risk in terms of two basic components, uncertainty and consequences, with the latter subdivided into two dimensions, performance and psychosocial consequences. Since then, other investigators (e.g., Roselius 1971) have identified other types of consequences (physical, time and money loss). Jacoby and Kaplan [1972] indicate five types of consequences (physical, psychological, social, financial, and performance) by cross-validating these dimensions. Performance risk tends to explain more variance than do any other type of consequence. Their results were supported and completed by Kaplan et al. [1974] who validated the existence of financial, performance, psychological, physical, social, and time consequences. Hence, the perceived risk can be conceptualized in psychological/social dimensions, or in economic/functional dimensions, or in some combination of both forms [Taylor 1974].

Brooker [1984] regrouped the perceived risk dimensions into two factors on the use of generic food products (peaches and spaghetti) using a varimax rotation factor analysis on perceived risk scale elements to see what the factor structure looked like. Then he got non-personal risk factor (i.e., financial, performance, physical, and time loss) and personal risk factor (i.e., psychological and social loss). Personal risks are defined as the risks that are related to self-image, self-concept or social evaluation [Brooker 1984]. Following this perspective, Lee and Kim [2008] measured consumers' risk perception across the purchasing modes by using personal risk group and non-personal risk group. According to the authors, personal risk refers to psychological risk and social risk. Non-personal risk includes physical risk, convenience risk, financial risk, and functional risk.

However, the majority of past research on perceived risk has focused on traditional marketplace and purchasing situations. Shopping in a virtual environment is much different from shopping in stores. Internet shopping offers the benefits of convenience, time and money savings. On the other hand, use of Internet for shopping is affected by additional risks not encountered in conventional marketplaces [Noort et al. 2007]. Several further dimensions relevant in this particular shopping context have been proposed based on E-commerce literature including, privacy risk, security risk, and source risk (e.g., Cases 2001; Jarvenpaa and Todd 1996–1997; McCorkle 1990). Dimensions of and concepts about perceived risk found in the literature concerning traditional shopping venues Internet shopping situations are presented in Table 1.

Most of the studies cited in Table 1 were conducted on multi-product categories (CDs, books, food, furniture, etc.). Only Cases's [2001] study focused on one product category, a jacket. In our study we selected clothing products, being more general than a jacket, but these items are similar in terms of perceived risk and risk reduction strategies. We explain in the next section why clothing products were selected for our research. It should be noted that physical risk dimensions related to safety or health when using a clothing product was not identified Case's [2001] study. She thought it is unnecessary to consider physical risk if the subjects were placed in a clothing purchase situation, a product category generally considered innocuous. But in the interview study conducted prior to

this research, many Chinese participants declared that physical risk was also a major concern for online clothing purchases because of the quality of the clothing product. As a result, physical risk is also considered in our research.

Table 1. Perceived Risk Dimensions and Their Concepts Proposed in Marketing and Information System Literature

Dimension	Definition	References	
		Traditional context	Internet context
Financial risk	Potential loss of current cost as well as additional charges in the future (e.g., possibility that the product may need to be repaired, delivery risk).	Cunningham [1967], Roselius [1971], Jacoby and Kaplan [1972], Peter and Ryan [1976], Stone and Gronhaug [1993]	McCorkle [1990], Jarvenpaa and Todd [1996–1997], Cases [2001], Featherman and Pavlou [2003], Crespo et al. [2009], Comegys C. et al. [2009], Ko et al. [2010]
Performance risk	Potential loss incurred when a product/service does not perform as expected.	Cunningham [1967], Jacoby and Kaplan [1972], Peter and Ryan [1976], Stone and Gronhaug [1993],	Jarvenpaa and Todd [1996–1997], McCorkle [1990], Cases [2001], Featherman and Pavlou [2003], Crespo et al. [2009], Comegys C. et al. [2009], Ko et al. 2010
Psychological risk	Potential loss of self-esteem (ego loss) from frustration at not achieving a buying goal.	Cunningham [1967], Roselius [1971], Jacoby and Kaplan [1972], Peter and Ryan [1976], Stone and Gronhaug [1993]	Featherman and Pavlou [2003], Comegys C. et al. [2009], Ko et al. [2010]
Physical risk	Related to safety or health.	Jacoby and Kaplan [1972], Peter and Ryan [1976], Stone and Gronhaug [1993]	Comegys C. et al. [2009], Ko et al. [2010]
Social risk	Potential loss of status in one's social group as a result of purchasing a product or service.	Cunningham [1967], Jacoby and Kaplan [1972], Peter and Ryan [1976], Stone and Gronhaug [1993]	Jarvenpaa and Todd [1996–1997], McCorkle [1990], Comegys C. et al. [2009], Ko et al. [2010]
Time risk	Possibility of time wasted researching information and purchasing when the purchase turn out bad.	Cunningham [1967], Roselius [1971], Peter and Ryan [1976], Stone and Gronhaug [1993]	McCorkle [1990], Cases [2001], Featherman and Pavlou [2003], Comegys C. et al. [2009], Ko et al. [2010]
Privacy risk	Personal information will be collected without their consent when giving one's credit card number online or use of cookies and web bugs.		Jarvenpaa and Todd [1996–1997], Cases [2001], Featherman and Pavlou [2003], Scott [2004], Comegys C. et al. [2009]
Payment risk	Financial consequences engendered by giving one's credit card number on the Internet.		McCorkle [1990], Jarvenpaa and Todd [1996–1997], Cases [2001], Scott [2004], Comegys C. et al. [2009]
Source risk	Level of website credibility and reliability.		McCorkle [1990], Cases [2001], Comegys C. et al. [2009]
Delivery risk	Not receiving product on time, long delivery time, or product being damaged during delivery.		Cases [2001]

Source: Adapted from Cases [2001], Featherman and Pavlou [2003], Crespo et al. [2009] and Ko et al. [2010]

2.3 Perceived Risk Reliever Strategies

As indicated by Roselius [1971], buyers are often concerned about potential loss or failure when they purchase a product. The consumer will use a variety of methods such as brand loyalty, asking family or friends, searching for

information, or comparing price to reduce risk and increase purchasing success. Roselius [1971] defined a risk reliever as a strategy or method adopted by buyers to assure a purchase success/to reduce loss in case of purchase failure.

A range of past research shows that buyers tend to use a diverse of risk-reduction strategies depending upon the purchasing environment and purchasing mode [Akaah and Korgaonkar 1988; Hawes and Lumpkin 1986; Tan 1999]. However, it is important to note that the results of these studies on risk reduction methods are not convergent. Cases [2002] noted that Hawes and Lumpkin [1986] were the first to include purchase mode in a study on the use of risk-relievers. They propose a ranking that is noticeably different from that proposed by Cox [1967] or Locander and Hermann [1979]. Although personal experience is still at the top of the list, name brand and word of mouth did not rank better than sixth. Another study (adopting the same perspective) by Akaah and Korgaonkar [1988] highlights the importance attached to a money-back guarantee, the manufacturer's reputation, and the price of the item. These relievers turned out to be more useful in reducing risk perception than the recommendation of a friend or familiarity with the brand.

As for risk reduction strategies for the Internet shopping mode, marketers must know which risk-reduction strategies are important for Internet consumers to be able to specifically reduce their concerns. For example, e-marketers providing guaranteed transaction security in response to perceived payment risk might manage to decrease consumers' perceived risk and increase their purchasing possibilities on the Internet. Past studies suggest a hierarchical set of categories to study risk reduction strategies in the Internet environment.

Citing the earlier study by Tan [1999], Cases [2001] indicates that Internet purchasing did not confirm the results obtained by previous studies in a "normal" purchase environment. The ranking was, in fact, reversed, since brand knowledge, testimonies and reference groups on the Internet received high utility scores, while money-back guarantee received a low score. The results of Samadi and Yaghoob-Najadi [2009] supported Tan's [1999] conclusion. They indicated that overall, "Money-back guarantee", "past experience", and looking for "information from friends or family" were the most referred to risk-reduction strategies for Internet risks. "Consumer reports", "store recommendation", "shopping around" and "store image" were the least referred to strategies for Internet shopping.

The results of the study conducted by Kim [2010] confirm the previous findings of Roselius [1971] and Tan [1999] in different purchase settings, by showing that consumers rely on a famous brand or manufacturer's name, strong money-back guarantee, and their previous purchasing experience to reduce their perceived purchasing risk on the Internet. In addition, the overall ranking of risk-reduction strategies in this study (although it shifted negative) was very similar to that of past research for store purchase [Roselius 1971].

Moreover, different types of products seem to evoke different reduction strategies for reducing risk [Nelson 1970; Kim 2010; Mangold et al. 1987; Samadi and Yaghoob-Najadi 2009; Soopramanien et al. 2007]. According to Kim [2010], previous research [Mangold et al. 1987] indicates that consumers are more likely to rely on personal or non-personal risk-reduction strategies depending on product type. Personal products refer to products that have more personal attributes such as clothes, accessories, and furniture, while non-personal products include CDs, and books. Personal strategies refer to risk reduction strategies that use personal information sources such as family and friends, while non-personal strategies include media sources, such as, TV and newspapers [Mangold et al. 1987]. In addition (as noted by Soopramanien et al. 2007), Nelson [1970] classifies products into two categories, either search (e.g. CD or a book) or experience products (e.g. clothes). Product and price information may be enough to reduce the risks associated with purchasing "search products". In the case of experience products, consumers may also need to have some 'experience' with the product more than just need information.

Kotler [1984] indicates that consumers prefer personal risk-reduction strategies when they are buying personal products. However, Kim's [2010] research on associated risk-reduction strategies on the Internet shopping environment show us a reversed answer, by indicating that consumers who use the Internet prefer non-personal simplifying risk-reduction strategies (i.e. well-known brand, money-back guarantee, quality of warranty, price information, and consumer reports) rather than personal clarifying risk-reduction strategies (i.e. shopping around, brand loyalty, visit/call local retailer, store image, and store recommendation) across product types.

In addition, as indicated by Cases [2002], the previous studies by Bauer, Cox [1967], Locander and Hermann [1979], Guseman [1981], and Toh and Heeren [1982] show that an elevated risk level leads to a greater influence of personal risk reduction strategies such as word of mouth, viewing the product, or consumer experience. The studies in the home shopping context [Hawes and Lumpkin 1986; Akaah and Korgaonkar 1988; Tan 1999] confirm this finding.

A convergent conclusion is obviously difficult to obtain from studies discussed above. Therefore, one of goals of this research is to investigate the Chinese consumers' risk-reduction strategy preference when purchasing a personal product (clothes) from the Internet. Further, fourteen risk-reduction strategies were selected based on their

personal and non-personal representativeness and applicability to Internet purchasing. Non-personal risk reduction strategies include product information, payment security, money-back guarantee, past experience using this product-brand loyalty, buying a well-known brand, price information, possibility of seeing the product in a store, existence of a local retailer (package delivery point, store), website loyalty, past online shopping experience, possibility of communicating with a salesperson (by phone or mail). Personal risk reduction strategies include word of mouth-information from family and friends and comments on the Internet.

3 Methodology

3.1 Sample: Use of Real Consumers

College students and/or undergraduates have been largely used as samples in previous studies on online shopping (e.g., Comegys et al. 2009; Kailani and Kumar 2011; Ko et al. 2004; Lee and Tan 2003; Liao et al. 2009; Ueltschy et al. 2004). "As everyone knows students are not typical consumers"[Wells 1993 p. 491], yet they are useful surrogates when modeling underlying consumer behavioral processes, as indicated by Sweeney et al. [1999]. From this perspective, unlike other similar studies which mainly depended on student subjects, the present study targets young professionals, working in different fields as a good sample of Internet buyers.

In addition, the category of young professionals was chosen because professionals are the largest online shopper group, accounting for 43.4% in 2009 and 35.8% in 2010 [CNNIC 2010]. Compared with 2009, in 2010 the percentage of online shoppers over 25 years old rose, among which the 25-30 year old online shopper group rose from 28.4% to 31.9%; the group between 31-35 years of age increased from 8.5% to 14.3% [CNNIC 2010].

All participants made at least one online purchase in the six months preceding the study. The sampling frame serves as a margin that limits the population [Refaat El Said 2005]. The participants in this study were between 20 and 40 years old, and were all working in Beijing and Shanghai, where people has a higher incidence of online purchasing than people in other cities [China IntellConsulting 2008]³. This study targets Chinese online clothing shoppers, but it is difficult to randomly select this type of shopper from the general population. A non-probability convenience sampling technique is a good choice for this study, although convenience sampling reduces the generalizability of the results to the entire population.

3.2 Product Selection

As mentioned previously, past research shows that purchase of different types of products elicit in consumers diverse internal strategies to lower risk [Samadi and Yaghoob-Najadi 2009]. Therefore, it is necessary to focus analysis of perceived risk and risk reduction strategies on one product or one product category.

According to CNNIC, the online clothing shopper group continues to expand in China. In 2010, clothing e-shoppers made up the largest online shopper group, accounting for 70.1% of total online shoppers, followed by the electronic products consumer group representing 31.6%. The third largest group purchased books, and video products and represents 31.4% of total online shoppers. By taking into account the largest online shopper group, i.e. clothing shoppers, we hope that this research results in a better understanding of Chinese online shoppers. This perspective is supported by the study conducted by Cases [2001] wherein she indicates that "the clothing industry, which occupies an important place in home shopping...is very often used in studies on risk perception [Derbaix 1983; Hawes and Lumpkin 1986] in addition to being characterized by familiarity and frequency of purchase" [p391].

3.3 Measurement

3.3.1 Perceived Risk Measurement Models

According to Mitchell [1999], Cunningham [1967] was one of the first to measure each dimension of the two-component perceived risk model on four-point scales. Each dimension was measured by three-point scales, which combined multiplicatively to give a one-to-nine risk scale. This two-component model is considered a good example of these simpler models and has been one of the most popular models used in measurement of risk perception because it is simple to use and is easy for respondents to understand. In addition, using this model allows researchers to take multiple measures of risk dimensions [Mitchell 1999].

To accommodate both the components and facets of perceived risk, the following model was formulated:

$$PR_n = IC_n \times PC_n$$

Where

PR = perceived risk

IC = importance of negative consequences from the purchase of clothing product online

PC = probability of negative consequences from the purchase of clothing product online

n = risk facets of perceived risk, e.g. time, psychosocial, financial etc.

³ China IntellConsulting is a professional China-based marketing research company.

The details of the items used for each dimension of risk and a copy of survey instrument are provided in the appendix A. For each perceived risk dimension being tested, respondents were asked two questions using a 6-point scale adopted from Hoover et al. [1978]. They are:

1. This kind of perceived risk dimension is (not important at all, not important, not very important, a little important, important, very important) in purchasing a clothing product on the Internet.

2. It is (completely impossible, impossible, not very possible, a little possible, possible, very possible) that this kind of perceived risk dimension will happen when you purchase this clothing product online.

The first question provides a measure of the consequences/importance of purchasing a clothing product on the Internet, and the second provides a measure of the certainty/possibility that the consequences will occur. The combined measure of perceived risk is derived by multiplying the responses to the two scales. The maximum perceived risk score of 36 occurs when a respondent indicates great perceived danger in buying a clothing product, and is never certain the article from online purchase will perform well; the minimum score of 1 is obtained when the respondent perceives no unfavorable consequence, and is always certain of online purchase success [Hoover et al. 1978].

3.3.2 Risk Relievers Measurement

The usefulness of risk relievers was assessed by a direct measure similar to that used by Cases [2002]. Average reliever-utility scores were gathered on a scale ranging from 1 (Not useful at all) to 7 (Very useful). The respondents were asked to score risk-reduction strategies according to their usefulness, when purchasing a clothing product from the Internet. Appendix B presents a copy of survey instrument for perceived risk relievers.

3.4 Data Collection

Ten data collectors working at eight large companies situated in Beijing and Shanghai were employed for the study to collect data. Large companies rather than small local companies were chosen for the study to avoid any regional culture bias. The data collectors were asked first to send an introduction to the survey to their colleagues by email through their internal email address. The colleagues that intended to participate in the survey were organized in a conference room to complete the printed self-administered questionnaires. A total of 156 professionals have accepted to participate in the survey among a sample of 482 professionals randomly selected by the data collectors. Among the printed questionnaires, a total of 21 incomplete questionnaires were returned, and a total of 132 completed questionnaires were returned, yielding a response rate of 27.4%. Respondents older than 40 years of age were excluded. Respondents who answered the questionnaires with the same response more than 20 times were assumed to have failed to make a serious effort to differentiate among their perceived risk or risk reduction strategies and were also dropped from the sample [Schwartz 1992]. After eliminating invalid responses, a total of 121 questionnaires from respondents who had an Internet clothing purchase experience were used for the analysis.

4 Results

4.1 Sample Valid

Since random sampling techniques are not employed consistently throughout the methodology, the generalizability of the collected data to the entire Chinese online clothing shopping population is reduced. The characteristics of typical Chinese clothing shoppers may differ from those shoppers who participated in the survey. Therefore, we compared the demographic characteristics of the sample in this study to those of the general Chinese online clothing shopping population, to ensure that the sample is representative.

Table 2 describes the general demographic sample characteristics. It was found that the sample characteristics basically satisfied the criteria for the target population as reported by CNNIC [2010] and by China IntellConsulting [2008]. China IntellConsulting reported that Female shoppers (58%) are a little more than male shoppers (42%) at the clothing category shopping. Regarding the age structure of online shoppers, they focus on the young age. The people from 18 to 30 years old are the main online shoppers, accounting for 80.2% of the total number of shoppers [CNNIC 2010]. This is confirmed by the age structure of the sample used in the study, although we found that the shoppers at the age between 18-22 years old in our sample are less than those in CNNIC survey [2010]. The reason to explain this difference is that the employees at the age from 18 to 22 are not large in the companies. Concerning online shoppers' education characteristics, CNNIC [2010] reported that the online shoppers are more educated. The online shoppers with university degree or higher degree accounts for 59.5% in 2008 and 40.4% in 2010. The recent sample is basically consistent with this report. But obviously the online shoppers with university degree or higher degree (68.7%) are more than those in CNNIC survey [2010]. This difference might be biased by the employee education structure in the large companies. According to CNNIC [2010] and China IntellConsulting [2008], the incomes of online shoppers focus on medium revenue level from 1500 to 5000 yuan. The revenue structure of the recent sample basically satisfies this criterion.

Table 2. General Demographic Sample Characteristics

Demographics		Frequency	Percent
Gender	Female	70	57.9
	Male	51	42.1
Age range	18-22	21	17.4
	23-25	46	38.0
	26-29	46	38.0
	30-34	7	5.8
	35-39	1	0.8
	≥40		
Education	High school	8	6.6
	College degree	27	22.3
	University degree	48	39.7
	Master	29	24
	Doctor	6	5.0
	others	3	2.5
Incomes	≤799 yuan	0	0
	800-1499 yuan	7	5.8
	1500-2499 yuan	53	43.8
	2500-3999 yuan	36	29.8
	4000-6999 yuan	14	11.6
	≥7000 yuan	11	9.1
Internet shopping experience	≤3 month	3	2.5
	3-6 month	2	1.7
	6-12 month	15	12.4
	1-2 years	30	24.8
	≥2 years	71	58.7
Frequency	1-2 times	14	11.6
	3-5 times	30	24.8
	6-10 times	25	20.7
	≥10 times	52	43.0

4.2 Factor analysis on Perceived Risk Dimensions

Similar to the method used by Brooker [1984] and Lee and Kim [2008], we used principle component factor analysis (PCA) followed by an oblique varimax rotation, with the scree test criterion to identify the number of factors of the perceived risk dimensions. A two-factor model of perceived risk was estimated, which accounted for approximately 56% of the total variance. As mentioned by Forsythe et al. [2006], total variance explained for perceived risks exceeded the minimum of 50% suggested for social science research [Hair et al. 1998; Tabachnick and Fidell 2001]. Furthermore, all perceived risk dimensions had a .50 or greater loading on the dominant factor and less than a .40 loading on other factors, confirming the independence of the constructs and ensuring maximum internal consistency. These are considered to be excellent loadings [Comrey 1973]. The resulting two-factor perceived risk dimensions demonstrated good reliability, with coefficient alphas of .815 for the first risk factor and .790 for the second risk factor (Table 3).

The seven dimensions emerging for the first risk factor included financial risk, payment risk, privacy risk, delivery risk, performance risk, source risk and physical risk. Financial risk is perceived as potential loss of the current cost (initial purchase price) as well as additional charges in the future. Payment risk is thought of as financial consequences engendered by giving one's credit card number on the Internet. Privacy risk is considered as abuse of personal information. Delivery risk has also been shown as an important risk in online clothing purchase. Performance risk is perceived as potential loss incurred when a clothing product does not perform as expected. Source risk is considered as fear of the level of credibility and reliability of the website. Physical risk is related to safety or health when using a clothing product. These perceived risks have been shown to share a common characteristic, that is, these seven dimensions are non-personal.

Table 3. Perceived Risk Dimensions with Factor Loadings and Cronbach's Alpha

Risk Factor	Risk Dimension	Factor Loading	Factor Loading	Cronbach's alpha
Non-personal risk	Financial risk	0.738		0.815
	Payment risk	0.679		
	Privacy risk	0.674		
	Delivery risk	0.670		
	Performance risk	0.642		
	Source risk	0.575		
	Physical risk	0.511		
Personal Risk	Social risk		0.875	0.790
	Psychological risk		0.839	
	Time risk		0.641	

KMO = .844, Approximated Khi-deux = 442,540, Bartlett's Test = 45, Bartlett Signification = .000

The other three dimensions emerging for perceived risks included social risk, psychological risk, and time risk. These three types of risk are considered as personal fears or concerns for an online clothing purchase. Social risks concern potential loss of status in one's social group, such as being laughed at by others, and refusal of entry into a social group as expected. Psychological risk refers to potential loss of self-esteem (ego loss) from the frustration of not achieving a buying goal. Time risk is related to the possibility of wasting time in researching information and purchasing when the purchase turn out bad.

The factor analysis results in this study on the use of clothing product basically comply with that of Brooker [1984] and Lee and Kim [2008], except that the time risk dimension is included in the personal risk factors in our study instead of non-personal risk. The reason for this difference might that time loss seems much more important to the employees in the large cities since they have a fast pace of life and work, and this importance apparently extends to the psychological level.

4.3 Measuring Perceived Risk Dimensions in Online Purchasing of a Clothing Product

Table 4 presents the average risk scores obtained for buying a clothing product on the Internet. Compared to personal perceived risks, non-personal perceived risks are considered more serious by Chinese online shoppers. Except that time risk is also quite important to these online shoppers. Among the seven perceived risks, performance risk associated with the product is ranked first as predominant risk dimension. Dimensions such as privacy risk, source risk and delivery risk associated with online shopping constitute major risks in the purchase of a clothing product on the Internet. The perceived risks related to monetary dimensions are considered less serious among non-personal perceived risk, ranked sixth or seventh. Finally, the two personal perceived risks, that is, social risk and psychological risk were far below the other dimensions, falling at the bottom of the Table 4.

Table 4. Ranking of dimensions of perceived risk for the purchase of a clothing product on the Internet

Ranking	Risk dimensions	Mean scores
1	Performance risk	24.75207
2	Privacy risk	20.17355
3	Source risk	19.23967
4	Delivery risk	18.91736
5	Time risk	17.31405
6	Financial risk	17.22314
7	Payment risk	17.09917
8	Physical risk	15.78512
9	Social risk	12.22314
10	Psychological risk	9.710744

The results of this study are different from those described in Cases' study [2001] executed in France, although French online shoppers also perceived more non-personal than personal risks in Cases' study [2001], where the ranking of source risk and privacy risk by Chinese e-shoppers is similar to that of French e-shoppers. Differing from French online consumers, Chinese online shoppers ranked as first their preoccupation with performance risk associated with product quality, followed by privacy risk and source risk. This difference might be explained by the specificity of Chinese Internet shopping development and environmental support (e.g., laws, regulation support).

Lacking quality guarantees for shopping sites or lacking laws and regulation protections, Chinese online shoppers are concerned about clothing product performance. This result is supported by CNNIC study. In this study, they found that quality problem (performance risk) is one of the major reasons why Chinese online buyers abandon one shopping site or switch from one shopping site to another. Quality problems are followed by delivery, service, price, convenience and security problems.

We noted that security problems are ranked last in the study by the CNNIC, which is proven by our recent study. However, this result contradicts the result obtained by Cases [2001]. In Cases' [2001] study, payment risk was perceived as a predominant risk dimension by French online shoppers. We justify this difference by providing three possible reasons. First, Cases' study was done in 2001 when the online shopping business had just emerged. It was obvious that Internet buyers were worried about payment security when online payment systems had not yet been perfected. Second, the Chinese payment system is well developed. Payment security is guaranteed by shopping sites or by third party payment tools. According to CNNIC, Chinese online shoppers are most satisfied with the payment part of a transaction, followed by shopping site, product, delivery and sales service. Third, we can explain these differences by referring to cultural differences.

Some research has investigated possible cultural explanations for differences in risk preference (e.g., Bontempo et al. 1997; Weber and Hsee 1998). Among the major dimensions of cultural values, individualism/collectivism and uncertainty avoidance [Hofstede 1991] were considered as being the most important cross-cultural perceived risks by researchers seeking possible cultural explanations for differences in risk perception between countries. Weber and Hsee's [1998] cushion hypothesis predicted that a culture's position on an individualism (e.g., France)-collectivism (e.g., China) continuum will affect the perceived risk to which members of that culture are exposed. According to the authors, collectivism cushions in-group members against the consequences of negative outcomes, and thus affects their subjective perceptions of the riskiness of risky options. Their proposal was consistent with Bontempo et al. [1997]. They observed cross-cultural differences in perception of riskiness of financial gambles, comparing students and security analysts from the U.S.A., the Netherlands, Hong Kong, and Taiwan. In their study, risk perception among respondents with Chinese cultural roots (Taiwan and Hong Kong) was different from that of respondents from the two Western countries.

The other main cultural stream used to explain differences in perceived risk is uncertainty avoidance. Cultures high in uncertainty avoidance would tend to be less risk-taking because they are motivated by a fear of failure or loss [Bontempo et al. 1997]. According to the classification of Hofstede [1991], China was identified as a relatively high uncertainty avoidance country, while France was identified as one of the lowest uncertainty avoidance countries. Thus, it can be assumed that cross-cultural differences measured by the uncertainty avoidance index could account for differences in perceived risk of online shopping between the two countries.

4.4 Measuring Risk Reduction Strategies in Online Clothing Purchases

Overall, the rankings clearly show that "information about product", "payment security", "money-back guarantee", "past experience using this product/brand", and "buying a well-known brand" were the top five most favorable risk reduction strategies for Chinese consumers to reduce their perceived clothing purchase risk on the Internet (Table 5). "Possibility of communicating with a salesperson (by phone or mail)" was the least referred to strategy for Internet clothing buying. "Information from family and friends", "comments on the Internet", "website loyalty", and "past online shopping experience" were rated as slightly favorable responses.

It seems that Chinese Internet clothing consumers prefer non-personal risk reduction strategies, such as information about a product, payment security, money-back guarantee, past experience using this product-brand, and buying a well-known brand to personal risk reduction strategies, such as information from family and friends, comments on the Internet, website loyalty, and possibility of communicating with a salesperson (by phone or mail). These findings support Kim's study [2010]. In his study he questioned Kotler's conclusion [1984] that consumers prefer personal risk reduction strategies when they are buying personal products (e.g., clothes). Our findings are also consistent with Cases' [2001] results where she found that word of mouth through friends, a salesperson, or via a chat room was considered to be less useful when buying a jacket on the Internet.

On the other hand, the risk reliever (i.e., buying a well-known brand), considered very useful in both store shopping and online shopping literature [Roselius 1971; Kim 2010], obtained low scores in our study. This result confirms the findings of Cases [2001] and Samadi and Yaghoob-Najadi [2009].

Table 5. Ranking of Perceived Risk Relievers for Online Clothing Purchase.

Ranking	Risk Reduction Strategies	Scores
1	information about product	6.729
2	payment security	5.777
3	money-back guarantee	5.760
4	past experience using this product/brand	5.719
5	buying a well-known brand	5.661
6	price information	5.628
7	possibility of seeing the product in a store	5.611
8	existence of a local retailer (package delivery point, store)	5.496
9	word of mouth- information from family and friends	5.438
10	word of mouth- comments on the Internet	5.397
11	website loyalty	5.298
12	past online shopping experience	5.140
13	possibility of communicating with a salesperson (by phone or mail)	4.438

4.5 Classification of Chinese Online Shoppers

Hierarchical cluster analysis regrouped the Chinese clothing e-shoppers into five groups based on their perceived risk scores. They are experienced risk-taking e-shoppers, self-dependent e-shoppers, personal-risk averseness e-shoppers, security-sensitive neophytes, and pleasure-seeking mature e-shoppers. Figure 1 show how the five groups are scattered in the axis where the horizontal *x axis* and the vertical *y axis* represent respectively personal risk factor and *non-personal risk factor*. Table 6 presents a description of the specific characteristics of each group.

Group 1: Experienced risk-taking e-shoppers

This group of e-shoppers makes up the greatest proportion of shoppers in our study (44.6% of the total e-shoppers), and as such should get more attention from e-marketers.

These individuals experience a medium level of non-personal perceived risk and a medium level of personal perceived risk. It can be noted that they are particularly concerned with performance risk, source risk, and delivery risk among non-personal perceived risk, while they care about time and social risk among personal perceived risk. They prefer the ‘self-strategies’ to reduce risks, that is, they try to guarantee their online purchase by seeking out product information, buying from the websites that practice money-back guarantee, past online shopping experience, and comparing prices. Some personal perceived risk reduction methods (e.g., asking family and friends’ opinion and online comments) can also help the first group reduce risk. Possibility of communicating with a salesperson is considered as the least favorable risk reliever method. Most of them already have extensive online shopping experience.

Group 2: Self-dependent e-shoppers

The individuals in the second group comprise 20.7% of the total e-shoppers in our study. This group experiences an extremely low level of personal perceived risk and high level of non-personal risk for clothing shopping on the Internet. This group of e-shoppers is more concerned about performance risk followed by privacy security, and financial risk.

They choose product information, buying a well-known brand, payment security, and brand loyalty as useful risk relievers, while asking family and friends is considered as the least useful method. From this point of view, we conclude that they attempt to reduce their perceived risk themselves, for example, by searching for product and price information, or by seeing the product in a store, rather than asking family and friends. They think that soliciting others’ opinions, referring to online comments for instance is not a good choice for reducing risks. There are two possible reasons to explain why they don’t like online comments. First, they like to research information on the Internet and they enjoy the process. Secondly, they don’t trust word of mouth (e.g., comments on the Internet). Based on their past experience, they seem to think that a large number of favorable comments on one commercial website or regarding one brand as published on the Internet might be written by this website or the company itself to attract consumers. In addition they contact with a salesperson, that is, “possibility of communicating with a salesperson by phone or mail” as the least useful method to reduce perceived risk.

Group 3: Personal-risk averseness e-shoppers

They have limited online shopping experience. This group experiences an extremely high level of personal risk and a medium level of non-personal perceived risk for clothing purchase on the Internet. They care particularly time risk and social risk.

As for their risk reduction strategies, they rely on themselves, but also consider others' opinions as being valuable. In other words, they like to buy well-known brand item clothes, they choose the website retailers that have money-back guarantee, they seek out product and price information and they like online consumers' comments. Possibility of communicating with a salesperson and online shopping experience are not considered as good perceived risk reliever strategies.

Group 4: Security-sensitive neophytes

This type of e-shopper, with the smallest proportion of buyers, comprises merely 4.96% of the e-shoppers. The individuals in this group experience by far the highest level of non-personal perceived risk and low level personal risk. Compared with the other four groups, this group of e-shoppers cares about a large number of risk dimensions. All of the risk dimensions have scores that are much higher than mean scores.

They are particularly concerned with privacy risk, performance risk, and source risk. Price information is considered as a less useful risk reduction method. They prefer seeing the product, the existence of a local retailer, word of mouth, and looking for comments on the Internet. In addition, they think that buying a well-known brand and money back guarantee are good methods for reducing risks. Past online shopping behavior can also help them measure perceived risk. It is interesting to note that they consider price information as the least favorable risk reduction method.

It is interesting to note that this group is made up of the youngest shoppers. They have the lowest e-shopping frequency and the shortest shopping experience. In addition, their incomes are the lowest when compared with the other groups.

Group 5: Pleasure-seeking mature e-shoppers

This group of e-shoppers perceives an extremely low level of non-personal risk and low personal risk. It can be noted that they are particularly concerned with physical risk, since they have a good knowledge base about Internet shopping and they understand the pitfalls of online purchasing. In addition, group of e-shoppers were less concerned by time risks than the other four groups, meanings that they are not bothered by the possibility of time lost if the clothes purchased on the Internet do not meet expectations. Shopping on the Internet is considered not only as a purchase vehicle, but also as a method to seek enjoyment for these shoppers.

They consider risk reduction methods relatively more useful. They have a highest level of e-shopping frequency and highest level of shopping experience. They are older than the members of the other four groups.

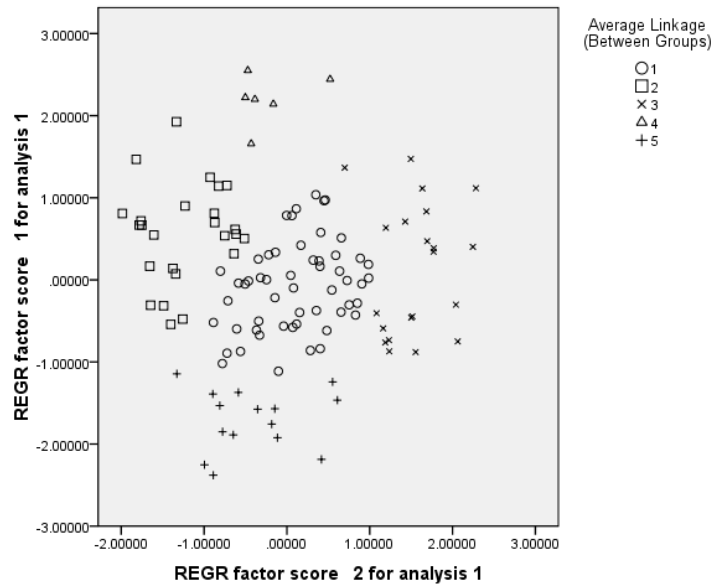


Figure 1. Scatter Plot of Five Clusters

5 Conclusions, Implications, and Future Directions

Online perceived risk is an important issue in e-commerce. To reduce online consumers' perception of risk and to increase the possibility of purchase, e-marketers and e-retailers must know which risk dimensions are of greatest concern to consumers and which risk-reduction strategies they find most favorable. Therefore, the aim of this study was to identify risk dimensions perceived by Chinese online shoppers and their preferences for methods of reducing risk, thus allowing us classify Chinese online shoppers and provide e-marketers with useful information concerning their clients.

Among the ten risk dimensions, a two-factor perceived risk was estimated. The seven dimensions emerging for first risk factor include financial risk, payment risk, privacy risk, delivery risk, performance risk, source risk and physical risk. The other three dimensions emerging for perceived risks include social risk, psychological risk, and time risk. Compared with personal perceived risks, non-personal perceived risks are considered more serious by Chinese online shoppers. Time risk is, however, also quite important to online shoppers. Among the seven perceived risks, performance risk associated with a product is ranked first as a predominant dimension of risk. It seems that Chinese online clothing consumers prefer non-personal risk reduction strategies, such as information about the product, payment security, money-back guarantee, past experience using this product-brand, and buying a well-known brand, over personal risk reduction strategies, such as information from family and friends, comments on the Internet, website loyalty, and possibility of communicating with a salesperson (by phone or mail). The rankings clearly show that "information about product", "payment security", "money-back guarantee", "past experience using this product/brand", and "buying a well-known brand" are the five most favorable risk reduction strategies for Chinese consumers to reduce their perceived clothing purchase risk on the Internet.

In light of these findings, e-marketers and e-retailers should be encouraged to minimize non-personal perceived risks, particularly in their efforts to propose more information about clothing products. Consumers need certain types of information to reduce potential uncertainty/risk [Weinberg 2001]. For example, 3D pictures, the details about clothing size, material components and product comparison. This information enables buyers to develop a more complete idea of the quality and outward appearance of the product. In addition, commercial sites need to stress money-back guarantee and to provide good service to consumers to enhance and support positive shopping experiences on the Internet. Payment security should also be paid attention to by e-marketers. This risk dimension is usually considered as one of the main concerns of online shoppers, although payment systems have been developed and largely accepted by e-shoppers in Chinese online marketplaces. Finally, e-marketers should also provide specific strategies to different e-shopper groups, for example, developing client relations, since brand loyalty appears to be a strong risk-reduction factor for Groups 2 and contact with a salesperson is useful for Group 4 and Group 5. Attribute-based user-customization should be considered by e-retailers as a strategy to develop client relations. According to Kamis et al. [2001 p.157], an attribute-based interface increases the customers' "sense of control" and "feeling of enjoyment" in their process of online shopping.

On the other hand, e-marketers should adopt personal risk relievers (word of mouth, contact with online sellers, etc.), although according to the results, personal risk reduction strategies are judged to be less useful. Word of mouth is always considered important for consumers who seek information because it reduces purchase decision making risk; it also helps companies attract clients. Naturally, both positive and negative comments should be paid attention to.

In addition to the managerial implications, this study contributes to methodological implications by using "real consumers". As mentioned previously, although college student and/or undergraduate student subjects have been used as samples in previous studies regarding online shopping, it is necessary to note that the use of student convenience samples may cause a sampling bias. From this perspective and for this reason, this study targeted young professionals, working in different disciplines.

This research has some limitations associated with generalizing these findings. First, random sampling was not employed consistently throughout the research. This study used a non-probability convenience sampling technique. The study was based on the young professionals between 20 and 40 years old. Although it was statistically found that the sample characteristics satisfied the criteria for the target population, the generalisation of the results should be treated with caution beyond the scope of this sample. Future empirical work is needed to demonstrate that these findings are not unique to this particular sample.

In addition, a very limited number of respondents were employed in our study. It was difficult to find a large number of professional "real consumers" that were available for our study, but we defend results of this research despite the fact that there were only 121 participants.

Second, our research is limited on using a single product category: clothing product. A future study is needed to collect data from other product categories to replicate the findings.

Third, given that the main instrument used to measure the constructs in this research is self-reported, the respondents' answers to their attitudes might be biased by their limited memory. Future research can develop more objective measures, such as an analysis of consumers' actual purchase on a real e-commerce site.

Fourth, this study clearly did not include all variables might be related to Internet perceived risk and risk reduction strategies. In our study, we just discussed consumer purchasing risk perceptions and risk reliever differences based on online purchasing frequency, experience, and socio-geographical variables. However, other variables such as personality and inter-culture comfort exist and should be tested in future studies.

Finally, some findings of this study are different from those of previous studies. For example, performance risk is ranked first by Chinese online buyers. In contrast, studies conducted in countries other than China (e.g., Cases' 2001 French-based study) indicate that performance risk is considered much less significant than other dimensions. We try to explain these differences by the specificity of the Chinese Internet shopping environment (e.g., laws, regulations, technical support) and Chinese cultural differences. However, this study does not pursue empirical arguments. Therefore, further investigation is necessary to provide empirical justification, thus allowing a better understanding of the reasons for these differences.

Table 6. Classification of Chinese Online Clothing Shoppers Based on Their Perceived Risk Scores

		Group 1	Group 2	Group 3	Group 4	Group 5
Sample size	<i>Total 121</i>	54 (44.6%)	25 (20.7%)	21 (17.4%)	6 (4.96%)	15 (12.4%)
Perceived risk	<i>Non-personal PR level</i>	<i>Medium</i>	<i>High</i>	<i>Medium</i>	<i>Extremely high</i>	<i>Extremely low</i>
	<i>Highest non-personal PR dimensions</i>	Performance Source Delivery	Performance Privacy Financial	Performance Source Privacy	Privacy Performance Source	Performance Source Physical
	<i>Personal PR level</i>	<i>Medium</i>	<i>Extremely low</i>	<i>Extremely high</i>	<i>Low</i>	<i>Low</i>
	<i>Highest personal PR dimensions</i>	Time Social	Time	Time Social	Time Social	Time Psychological
Risk relievers	<i>Risk reliever usefulness</i>	Highest level	Lower level	Lowest level	Higher level	
	<i>Favorable risk relievers</i>	Product information Money-back guarantee Brand loyalty Price	Product information Buying a well-known brand Payment security Brand loyalty	Product information Price Brand, money- back guarantee and comments	See the product and Store Word of mouth, comments, well-known brand, and money-back guarantee	Product See the product and brand loyalty Store
	<i>Less favorable risk relievers</i>	Contact	Contact, Online shopping experience, Comments Word of mouth , Store	Contact Online shopping experience	Price	No
E-shopping experience	<i>E-shopping frequency</i>	Higher	Lower	Lower	Lowest	Highest
	<i>E-shopping time</i>	Longer	Longer	Shorter	Shortest	Longest
Socio-geographic	<i>Sex</i>	Male 27 (50%) Female 27 (50%)	Male 8 (32%) Female 17 (68%)	Male 4 (19%) Female 17 (81%)	Male 2 (33.3%) Female 4 (66.7%)	Male 10 (66.7%) Female 5 (33.3%)
	<i>Age</i>	Mean=2.28	Mean=2.24	Mean=2.14	Mean=1.83 Young	Mean=2.69 Old
	<i>Incomes</i>	High	Highest	High	Low	High

Acknowledgment

The authors wish to thank Egide: Bourse du programme d'excellence Eiffel for its support of this research.

REFERENCES

- Akaah, I. P. and P. K. Korgaonkar, "A conjoint investigation of the relative importance of risk relievers in direct marketing," *Journal of Advertising Research*, Vol. 3: 38-44, August/September, 1988.
- Angriawan, A. and R. Thakur, "A parsimonious model of the antecedents and consequence of online trust: An uncertainty perspective," *Journal of Internet Commerce*, Vol. 7, No. 1: 74-94, 2008.
- Arndt, J., "Word-of-mouth advertising and informal communication," in D. F. Cox (Ed.), *Risk-taking and information-handling in consumer behavior*. Boston: *Harvard University Press* (a), pp. 188-239, 1967.
- Arndt, J., "Perceived risk, sociometric integration, and word-of-mouth in the adoption of a new food product," in D. F. Cox (Ed.), *Risk-taking and information-handling in consumer behavior*. Boston: *Harvard University Press* (b), pp. 289-316, 1967.
- Bauer, R. A., "Consumer behavior as risk taking," in Hancock, R. (Ed.), *Dynamic Marketing for a Changing World: Proceedings of 43rd Conference, American Marketing Association*, Chicago, IL, USA, pp. 389-398, 1960.
- Brooker, G., "An assessment of an expanded measure of perceived risk," in *Advances in Consumer Research* Volume 11, eds. Thomas C. Kinneer, Provo, UT : Association for Consumer Research, pp. 439-441, <http://www.acrwebsite.org/volumes/display.asp?id=6292>, 1984.
- Bontempo, R. N., W. P. Bottom, and E. U. Weber, "Cross-cultural differences in risk perception: A model-based approach," *Risk Analysis*, Vol.17: 479-488, 1997.
- Cases, A.-S., "Perceived risk and risk-reduction strategies in Internet shopping," *The International Review of Retail, Distribution and Consumer Research*, Vol. 12, No. 4: 375-394, 2001.
- "China's Internet Shopping Market Report 2011," http://www.cnnic.cn/research/bgxz/dzswbg/201106/t20110602_21245.html, February 2011.
- Comegys, C., M.Hannula, and J. Väisänen, "Effects of consumer trust and risk on online purchase decision-making: A comparison of Finnish and United States students," *International Journal of Management*, Vol. 26, No. 2:295-309, 2009.
- Comrey, A., *A first course on factor analysis*, London: Academic Press, 1973.
- Cox, D. F., "Risk handling in consumer behavior – an intensive study of two cases," in Cox, P.F. (Ed.), *Risk Taking and Information Handling in Consumer Behavior*, Graduate School of Business Administration, Harvard University, Boston (a): 34-8, 1967.
- Crespo, A. H., I. R. Del Bosque, and M. M. G. de los Salmones Sanchez, "The influence of perceived risk on Internet shopping behavior: a multidimensional perspective," *Journal of Risk Research*, Vol. 12, No. 2: 259-277, 2009.
- Cunningham, S. M., "The major dimensions of perceived risk," in Cox, D.F. (Ed), *Risk taking and information handling in consumer behavior*, Graduate School of Business Administration, *Harvard University Press*, Boston, MA: 82-108, 1967.
- Derbaix, C., "Perceived risk and risk relievers: an empirical investigation," *Journal of Economic Psychology*, Vol. 3: 19-38, 1983.
- Featherman, M. S. and P. A. Pavlou, "Predicting E-services adoption: A perceived risk facets perspective," *International Journal of Human-Computer Studies*, Vol. 59: 451-474, 2003.
- Forsythe, S., C.-L. Liu, D. Shannon, and L.-C. Gardner, "Development of a scale to measure the perceived benefits and risks of online shopping," *Journal of Interactive Marketing*, Vol. 20, No. 2: 55-75, 2006.
- Gupta, B., L. S. Iyer, and R. S. Weisskirch, "Facilitating global e-commerce: a comparison of consumers' willingness to disclose personal information online in the U.S. and India," *Journal of Electronic Commerce Research*, Vol. 11, No. 1: 41-52, 2010.
- Guseman, D. S., "Risk perception and risk-reduction in consumer services," in Donnelly, J.H. and George, W.R. (eds) *Marketing of Services*, Chicago: American Marketing Association, pp. 200-204, 1981.
- Hair, J. F. J., R. E. Anderson, R. L. Tatham, and W. C. Black, *Multivariate data analysis* (5th Ed ed.), Upper Saddle River, NJ: Prentice Hall, 1998.
- Hawes, J. M. and J. R. Lumpkin, "Perceived risk and the selection of a retail patronage mode," *Journal of the Academy of Marketing Science*, Vol. 14, No. 4: 37-42, 1986.
- Hofstede, G. H., *Cultures and organizations: Software of the mind: Intercultural cooperation and its importance for survival*, *McGraw-Hill International*, 1991.
- Hoover, R. J., R. T. Green, and J. Saegert, "A cross-national study of perceived risk," *Journal of Marketing*, pp. 102-108, July, 1978.
- Kailani, M. and R. Kumar, "Investigating uncertainty avoidance and perceived risk for impacting Internet buying: A study in three national cultures," *International Journal of Business and Management*, Vol. 6, No. 5: 76-92, 2011.

- Kalakota, R. and A. B. Whinston, "Frontiers of Electronic Commerce," Addison-Wesley: 1-3, 1996.
- Kamis, A., T. Stern, D. Ladik, "A flow-based model of purchase intention when users customize products in business-to-consumer electronic commerce," *Information Systems Frontiers*, Vol.12, No. 2: 157-168, 2010, <http://www.springerlink.com/content/cw66568h32448843/>.
- Kaplan, L. B., G. J. Szybillo, and J. Jacoby, "Components of perceived risk in product purchase: A cross-validation," *Journal of Applied Psychology*, Vol. 59, No. 3: 287-291, 1974.
- Kim, I., "Consumers' rankings of risk reduction strategies in e-shopping," *International Journal of Business Research*, Vol. 10, No. 3: 143-148, 2010.
- Ko, H., J. Jung, J. Kim, and S.W. Shim, "Cross-cultural differences in perceived risk of online shopping," *Journal of Interactive Advertising*, Vol. 4, No. 2: 20-29, 2004.
- Kogan, N. and M. A. Wallach, Risk-taking: A study in cognition and personality, New York: Holt, Rhinehart & Winston, 1964.
- Kotler, P., *Marketing management*, 13th ed. Prentice-Hall New York, 2009.
- Korgaonakar, P. K., "Consumer preference for catalog showrooms and discount stores: the moderating role of product risk," *Journal of Retailing*, Vol. 58, No. 3: 76-88, 1982.
- Jacoby, J. and L. B. Kaplan, "The components of perceived risk," in Proceedings of the Third Annual Conference of the Association for Consumer Research: Association for Consumer Research: 382-393, 1972.
- Jarvenpaa, S. L. and P. A. Todd, "Consumer reactions to electronic shopping on the World Wide Web," *International Journal of Electronic Commerce*, Vol. 1, No. 2: 59-88, 1996-1997.
- Lee, F. and I. Kim, "Online consumers' perceived risk analysis: a graphical modeling approach," *Journal of Academy of Business and Economics*, Vol. 8, No. 1, <http://www.freepatentsonline.com/article/Journal-Academy-Business-Economics/192587612.html>, 2008.
- Lee, K. and S. J. Tan, "E-retailing versus physical retailing: A theoretical model and empirical test of consumer choice," *Journal of Business Research*, Vol. 56, No. 11: 877-885, 2003.
- Liao, H., R. Proctor, and G. Salvendy, "Chinese and US online consumers' preferences for content of e-commerce websites: a survey," *Theoretical Issues in Ergonomics Science*, Vol. 10, No. 1: 19-42, 2009.
- Locander, W. B. and P. W. Hermann, "The effect of self-confidence and anxiety on information seeking in consumer risk-reduction," *Journal of Marketing Research*, Vol. 16, No. 2: 268-74, 1979.
- Mandel, N., "Shifting selves and decision making: The effects of self-construal priming on consumer risk-taking," *Journal of Consumer Research*, Vol. 30, No. 1: 30-40, 2003.
- Mangold, G. W., R. L. Berl, Pol, and C. L. Abercrombie, "An analysis of consumer reliance on personal and nonpersonal sources of professional service information," *Journal of Professional Services Marketing*, Vol. 2, No. 3: 9-29, 1987.
- McCorkle, D. E., "The role of perceived risk in mail order catalog shopping," *Journal of Direct Marketing*, Vol. 4, No. 4: 26-35, 1990.
- Mitchell, V.-W., "Consumer perceived risk: conceptualizations and models," *European Journal of Marketing*, Vol. 33, No. 1, 2: 163-195, 1999.
- Nelson, P. J., "Information and consumer behavior," *Journal of Political Economy*, Vol. 78: 311-29, 1970.
- Nugent, J. H. and M. S. Raisinghani, "The information technology and telecommunications security imperative: important issues and drivers," *Journal of Electronic Commerce Research*, Vol. 3, No. 1: 1-14, 2002.
- Noort, G. V., P. Kerkhof, and B. M. Fennis, "Online versus conventional shopping: consumers' risk perception and regulatory focus," *Cyberpsychology & behavior: the impact of the Internet, multimedia and virtual reality on behavior and society*, Vol. 10, No. 5: 731-733, 2007.
- Park, J., D. Lee, and J. Ahn, "Risk-focused e-commerce adoption model: A cross-country study," *Journal of Global Information Technology Management*, Vol. 7, No. 2: 6-30, 2004.
- Pavlou, P. A. and L. Chai, "What drives electronic commerce across cultures? A cross-cultural empirical investigation of the theory of planned behavior," *Journal of Electronic Commerce Research*, Vol. 3, No. 4: 240-253, 2002.
- Peter, J. P. and M. J. Ryan, "An investigation of perceived risk at the brand level," *Journal of Marketing Research*, Vol. 5, No. 13:184-188, 1976.
- Pires, G., Stanton, J. and A. Eckford, "Influences on the perceived risk of purchasing online," *Journal of Consumer Behaviour*, Vol. 4, No. 2: 118-131, 2004.
- Refaat El Said G., "Cultural effect on electronic consumer behavior: The effect of uncertainty avoidance on online trust for the Egyptian Internet users," PhD dissertation, Brunel University, 2005.
- Roselius, T., "Consumer rankings of risk reduction methods," *Journal of Marketing*, Vol. 35, No. 1: 56-61, 1971.
- Ross, I., "Perceived risk and consumer behavior: a critical review," in *Advances in Consumer Research* (2), eds. Mary Jane Schlinger: Association for Consumer Research: 1-20, 1975.
- Samadi, M. and A. Yaghoob-Najadi, "A survey of the effect of consumers' perceived risk on purchase intention in E-shopping," *Business Intelligence Journal*, Vol. 2, No. 2: 261-275, 2009.

- Santana, S. and S. Loureiro, "Assessing benefits and risks of online shopping in Spain and Scotland," *Portuguese Journal of Management Studies*, Vol. XV, No. 2:161-172, 2010.
- Schiffman, L. G., "Perceived risk in new product trial by elderly consumers," *Journal of Marketing Research*, Vol. 9: 106-108, 1972.
- Schwartz, S. H., "Universals in the content and structure of value: theoretical advances and 20 countries," *Advances in Experimental Social Psychology*, Vol. 25, http://infolab.stanford.edu/~jures/pub/misc/darja_clanek.pdf, 1992.
- Scott, J. E., "Measuring dimensions of perceived e-business risks," *Information Systems and e-Business Management*, pp. 31-55, 2004.
- Soopramanien, D. G. R., R. Fildes, and A. Robertson, "Consumer decision making, E-commerce and perceived risks," *Applied Economics*, Vol. 39: 2159-2166, 2007.
- Stone, R. N. and K. Gronhaug, "Perceived risk: Further considerations for marketing discipline," *European Journal of Marketing*, Vol. 27, No. 3: 39-50, 1993.
- Stone, R. N. and F. W. Winter, "Risk in buyer behavior contexts: a clarification," *Faculty Working Paper 1216 EWP 860505*. Champaign, IL: College of Commerce and Business Administration, University of Illinois, 1985.
- Sweeney, J., G. Soutar, and L. Johnson, "The role of perceived risk in the quality-value relationship: A study in a retail environment," *Journal of Retailing*, Vol. 75, No. 1: 77-105, 1999.
- Tabachnick, B. G., and L. S. Fidell, *Using multivariate statistics* (3rd ed.), New York: HarperCollins, 2001.
- Tan, S. J., "Strategies for reducing consumers' risk aversion in Internet shopping," *Journal of Consumer Marketing*, Vol. 16, No. 2: 163-80, 1999.
- Thaler, R., "Mental accounting and consumer choice," *Marketing Science*, Vol. 4, No. 3: 199-214, 1985.
- Toh, R., and S. G. Heeren, "Perceived risks of generic grocery products and risk-reduction strategies of consumers," *Akron Business and Economic Review*, Vol. 13, No. 1: 43-48, 1982.
- Ueltschy, L. C., R. F. Krampf, and P. Yannopoulos, "A cross-national study of perceived consumer risk towards online (Internet) purchasing," *The Multinational Business Review*, Vol. 12, No. 2: 59-83, 2004.
- Van den Poel, D. and J. Leunis, "Perceived risk and risk-reduction strategies in mail-order versus retail store buying," *The International Review of Retail, Distribution and Consumer Behavior*, Vol. 6, No. 4: 351-71, 1996.
- Vyncke F. and M. Brengman, "Are Culturally Congruent Websites More Effective? An overview of a decade of empirical evidence," *Journal of Electronic Commerce Research*, Vol. 11, No. 1: 14-29, 2010.
- Weber, E. U. and C. K. Hsee, "Cross-cultural differences in risk perception, but cross-cultural similarities in attitudes towards perceived risk," *Management Science*, Vol. 44, No. 9: 1205-1217, 1998.
- Weber, E. U., C. K. Hsee, and J. Sokolowska, "What folklore tells about risk and risk taking? Cross-cultural comparisons of American, German and Chinese proverbs," *Organizational Behavior and Human Decision Processes*, Vol. 75: 170-186, 1998.
- Weinberg, B. D. "Research in exploring the online consumer experience," in *Advances in Consumer Research*, Vol. 28, eds. Mary C. Gilly and Joan Meyers-Levy, Valdosta, GA : Association for Consumer Research, 227-232, 2001.
- Wells, W. D., "Discovery-oriented consumer research," *Journal of Consumer Research*, Vol. 19, No. 3: 489-504, 1993.

Appendix A. Perceive Risk Instrument

Perceived risk dimension	Statement of each dimension	Importance of the risk						The chance that risk will occur					
		not important at all	not important	not very important	a little important	important	very important	completely impossible	impossible	not very possible	a little possible	possible	very possible
Performance risk	The clothes purchased don't perform as expected (e.g. quality, size, or defects).	1	2	3	4	5	6	1	2	3	4	5	6
Physical risk	The clothes have a negative effect on the body (quality, material).	1	2	3	4	5	6	1	2	3	4	5	6
Financial risk	Potential loss of the current cost as well as additional charges in the future (e.g., the possibility that the product may need to be repaired, be changed, or difficulty to get money back).	1	2	3	4	5	6	1	2	3	4	5	6
Sauce risk	False or fraudulent online information causes that the clothing product purchased online doesn't meet the expectations.	1	2	3	4	5	6	1	2	3	4	5	6
Security risk	Loss of money if the credit card information is hacked.	1	2	3	4	5	6	1	2	3	4	5	6
Delivery risk	Not receiving the product on time, long delivery time, or product being damaged during the delivery.	1	2	3	4	5	6	1	2	3	4	5	6
Time risk	Waste time researching information and purchasing when finally making a bad purchasing decision.	1	2	3	4	5	6	1	2	3	4	5	6
Social risk	The pressure from the friends or the family if the clothing purchase online is failed.	1	2	3	4	5	6	1	2	3	4	5	6
Psychological risk	Loss of self-esteem, or disappointed from the frustration of not achieving a buying goal.	1	2	3	4	5	6	1	2	3	4	5	6
Privacy risk	Personal information will be collected without their consent when giving one's credit card number online or use of cookies and web bugs.	1	2	3	4	5	6	1	2	3	4	5	6

Appendix B. Perceive risk relievers instrument

Risk Reduction Methods	not useful at all	not useful	not very useful	undecided	a little useful	useful	very useful
Information about product	1	2	3	4	5	6	7
Price information	1	2	3	4	5	6	7
Possibility of seeing the product in a store	1	2	3	4	5	6	7
Buying a well-known brand	1	2	3	4	5	6	7
Website loyalty	1	2	3	4	5	6	7
Money-back guarantee	1	2	3	4	5	6	7
Existence of a local retailer (package delivery point, store)	1	2	3	4	5	6	7
Possibility of communicating with a salesperson (by phone or mail)	1	2	3	4	5	6	7
Payment security	1	2	3	4	5	6	7
Information from family and friends	1	2	3	4	5	6	7
Comments on the Internet	1	2	3	4	5	6	7
Past online shopping experience	1	2	3	4	5	6	7
Past experience using this product/brand	1	2	3	4	5	6	7