

# A Survey of the Effect of Consumers' Perceived Risk on Purchase Intention in E-Shopping

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## **Abstract**

This research paper aims to compare the perceived risk level between Internet and store shopping, and revisit the relationships among past positive experience, perceived risk level, and future purchase intention within the Internet shopping environment. To achieve the research objectives and test hypotheses, paired sample t-test is used to analyze the mean differences of the individual and overall perceived risk levels in two buying situations. In addition, to analyze the relationships among shopping experiences, perceived risk, and purchase intention variables, Pearson correlation analysis and linear regression are used. The research revealed that consumers perceived more purchasing risk from the Internet than from the store. A more positive online shopping experience led to consumers' less perceived purchasing risk level in the Internet. And a higher perceived risk led to less future purchasing intention from the Internet.

**Keywords:** Internet, E-shopping, Perceived risk, Behavioral intention

## Introduction

The increased globalization of the world economies has created many opportunities for marketers. At the same time, this has also intensified competition among businesses so that many companies are looking towards unconventional forms of marketing. Marketing through the Internet is one such unconventional form of marketing that many companies have turned to.

While many businesses are rapidly adopting the Internet as the means through which they can efficiently and economically conduct their marketing activities, there are many risks associated with its use. For example, the Internet has very little security and any company using the Internet risks disclosure of proprietary information [40]. However, these are risks affecting companies marketing through Internet. What risks do consumers face when shopping online?

Consumers perceive risks in most store purchase decisions [11], and the general conclusion from direct-marketing related studies is that consumers associate a higher level of risk with non-store purchase than store purchase decisions [2]. Given that Internet shopping is a high technology form of direct marketing, what do we know about the risk perception of consumers who shop for goods at the virtual storefront? In the marketing literature, research has shown that the use of certain risk reduction strategies such as brand reputation, product trial, and warranty are successful in reducing the risk perception of consumers [45, 50, 26, and 9]. However, are these strategies effective too for virtual shoppers? These questions have not been addressed in the research on Internet marketing. In fact, most of the existing literature concentrated on explaining the advantages and disadvantages of Internet marketing [40, 1], but none addresses the issues raised here about the consumers' concerns in virtual shopping.

Online consumer behavior is a research area with an increasing number of publications per year. Although researchers have made noticeable progress with respect to the scope, quality and quantity of research, there are still significant disagreements about the findings in this area [33].

Iran, located in Middle East, is stated to have not only the fastest growing internet usage in this region (Slavin, 2005) but also in the whole world [43]. Internet was introduced in Iran in 1992 at the Institute for Studies in Theoretical Physics and Mathematics in Tehran. It remained an academic tool until 1997. Internet has been led to a quick expansion since 2000. The number of people using the internet rose from 250,000 (3.8 percent of the total population) in 2000 to 23,000,000 (34.9 percent of the total population) in June, 2008, establishing a 9100-percent user growth record. According to the latest World Internet User Statistics report, among the top 20 countries with the highest number of internet users in the world, Iran holds the rank of 17. As for Middle East internet usage rating, Iran ranks first followed by Saudi Arabia and Israel each with 6,200,000 and 3,700,000 internet users respectively [27]. As many as 100,000 web logs exist in Farsi, making it the third most common language of blogs, after English and French. "Three-fourths of internet users are between the ages of 21 and 32, and 14 percent use internet 38 hours or more per week" [54]. Regarding the online shop industry in Iran, not much literature can be found. Based on EIU ratings in year 2000, among 60 countries, Iran has the 58th place in e-commerce. Obviously, e-commerce is something new for Iran and Iranian shoppers. But it is steadily growing and it seems to grow fast in the future. Online shopping is also in its very early stages, as well. It has been reported by ILNA (Iranian Labour News Agency) that approximately 1200 online shops have been formed and experienced online business in Iran by 2004 (2004 Dec. 13). In addition, the manager of "the project of online purchase" of Iran post office organization has stated that 86000 orders of the internet shoppers have been delivered by the Post Office by the end of year 2005-up from 30000 orders in 2004. He further added most of these orders were CDs, books and little home appliances and the average cost of each order is between 100000-150000 Rls, whereas the maximum cost has been 1500000 Rls.

The idea of buying goods (unless they are of homogenous quality such as books, VCDs, hotel

rooms and airplane tickets) that one cannot see and touch, from sellers thousands of kilometers away may take some 'getting used to' for an ancient culture such as Iranians, who are used to face-to-face transactions, familiarity with the other party, strong individual relationship and long term association between the parties, and getting satisfaction from winning business negotiations (they are willing to employ a variety of tactics to get the best deal).

As an ancient culture, Iran has its distinct socio-economical environment to be studied, and as a developing country, there are great business opportunities foreseen by adopting e-commerce for years to come.

This paper addresses the issue of Internet marketing from the perspective of the consumers. It seeks to determine the risk perception of Internet shoppers and their choice of different types of risk reduction mechanisms available when shopping through the Internet. The results of the study show that consumers perceived Internet shopping to be of higher risk than in-store shopping. They also show that a more positive online shopping experience led consumers' less perceived purchasing risk level in the Internet and a higher perceived risk led to less future purchasing intention from the Internet.

The rest of the paper is organized as follows. The next section deals with the development of hypotheses tested in this paper. The third section of this paper provides a description of the research materials and methods, the results of which are described in Section 4. Section 5 concludes the paper with a discussion on marketing implications of the study and research limitations.

## Hypotheses Development

Internet and online shopping have been growing rapidly over the past ten years. The number of consumers who purchase online is growing sharply. More than 85 percent of the world's online population has used the Internet to make a purchase -- increasing the market for online shopping by 40

percent in the past two years -- according to the latest Nielsen Global Online Survey on Internet shopping habits. Globally, more than half of Internet users have made at least one purchase online in the past month, according to Nielsen [39]. As a global trend, shopping on the internet has a high probability of creating a fully customer-oriented society to be led by people (prosumers = producers + consumers) in the future. The trend is a product of the characteristic of the internet with excellent network performance and interactivity.

In addition to this tremendous growth, the characteristics of the global electronic market constitute a unique opportunity for companies to more efficiently reach existing and potential customers by replacing or enhancing traditional retail stores with Web-based businesses [34]. Therefore, the World Wide Web (WWW) enables businesses to explore new markets that otherwise cannot be reached.

The use of the Internet for purchasing goods and services has enormous potential. According to some researchers the Internet is the very encapsulation of "one-to-one marketing" and as such gives the companies the ability to establish enduring relationship with individual customers. Consequently, Electronic Commerce (EC) has emerged as the most important way of doing business for years to come.

**Perceived risk:** The term perceived risk means the individual's subjective belief about potentially negative consequences from his/her decision. In other words, "perceived" is used as opposed to objective outcome distributions of an alternative or a product class with that a consumer is associated.

In attempting to understand the manner in which consumers engage in new consumer behaviors through or in the Internet, it appears that "risk" is one of the main concerns for shoppers contemplating the Internet. The results of the Graphics, Visualization and Usability Center [GVU] survey [22] showed that consumers are unwilling to make a purchase in the Internet market because of a perceived high risk about the quality of the product, new payment methods, delivery options, and information content.

There are a number of reasons why risk is an appropriate place to look at the manner in which traditional theories and propositions of marketers hold up in the Internet area. First, perceived risk theory provides a comprehensive explanation of why consumers are more often motivated to avoid negative aspects than to seek positive aspects or payoffs in a given buying situation. Perceived risk theory postulates that buyers are inclined to minimize the perceived risk first, rather than to maximize the expected positive outcome or expected payoff [49]. In this way, it has been possible to understand some of the consumer behaviors that are not comprehensible in a normative utility theory. Besides, it has been shown that once consumers' perceived risks have been identified in a buying situation, there seems to be some evidence to determine subsequent consumer behavior in accordance with such risks [55].

Second, perceived risk theory is expandable to almost all kinds of consumer products and services. That is, the previous perceived risk research demonstrates that the theory can be successfully applied to a wide range of consumer product categories, including coffee [4], detergent [13], furniture [25], automobiles [41], and services [37].

Third, perceived risk analysis increases marketing efficiency [35]. Since a study of risk identifies consumers' preferred risk-reduction strategies, the focus on useful strategies brings about more efficient resource allocation into all marketing activities, including brand/image development, targeting, positioning, and segmentation.

Fourth, the study of perceived risk leads consumers to more effective decision making. Davis and Olson [15] argued that perceived risk is a significant source of psychological stress that results in impaired decision-making. Thus, marketers' understanding of perceived risk structure and the provision of risk relievers give consumers a better environment for making buying decisions.

For all these reasons, investigating consumer risk perception and providing proper risk-reduction strategies within the Internet shopping environment offers a great deal to potential Internet marketing. But the investigation of risk perception in Internet shopping decisions goes beyond mere "help" for Internet marketers. The relationship between risk perception and consumer behavior is a well-researched and well-understood area of consumer research. The specific findings of the relationship between risk and Internet behavior will help explain the manner in which we need to consider the Internet. If the Internet is simply another arena of consumer action, then we should be able to find relationships between risk and consumer behavior in the Internet arena which are isomorphic to those we have found in the traditional shopping and consumer behavior arenas.

**Types of Perceived Risk:** Several types of risk that consumers perceive can be identified: functional risk, physical risk, financial risk, social risk, and psychological risk [28]. Table 1 illustrates different types of risks according to Jacoby and Kaplan categorization. Roselius [45] also proposed a slightly different conceptualization of the perceived risk types by identifying the possible losses that a consumer may experience due to a purchasing decision: time loss, hazard loss, ego loss, and money loss. It is notable that the psychological aspect is first proposed as a major perceived risk type. Consumers form perceptions regarding intangible "psychic costs" in the form of anxiety, frustration, and down time along with tangible financial and performance losses. Thus, the perceived risk can be in psychological/social terms, or in economic/functional terms, or in some combination of both forms [55].

Table 1. Types of Perceived Risk (Jacoby & Kaplan, 1972)

TYPE OF RISK	BUYERS MOST SENSITIVE TO IT	PURCHASES MOST SUBJECT TO IT
<b>Physical</b>	Risk capital consists of physical vigor, health, and vitality. Those who are elderly, frail, or in ill health are most vulnerable.	Mechanical or electrical goods (such as vehicles, flammables), drugs and medical treatment, food and beverages.
<b>Convenience</b>	Risk capital consists of importance of time, convenience, and effort getting the product adjusted, repaired, or replaced. Those who have a scheduled, oriented life are most sensitive.	Concert, airline tickets, items that require high opportunity cost are most subject to this form of risk.
<b>Monetary</b>	Risk capital consists of money and property. Those with relatively little income or wealth are most vulnerable.	High-ticket items that require a substantial expenditure are most subject to this form of risk.
<b>Functional</b>	Risk capital consists of alternate means of performing the function or meeting the need. Practical consumers are most sensitive.	Products or services whose purchase and use require the and preclude redundancy. buyer's exclusive commitment
<b>Social</b>	Risk capital consists of self-esteem and self-confidence. Those who are insecure and uncertain are most vulnerable.	Socially visible or symbolic goods such as clothes, jewelry, cars, homes, or sports equipment are most subject to it.
<b>Psychological</b>	Risk capital consists of affiliations and status. Those lacking respect or attractiveness to peers are most sensitive.	Expensive personal luxuries that may engender guilt, durable goods, and services whose use demands self-discipline or sacrifice.

**The Mode of Shopping and Perceived Risk:**

The results of previous research [12, 20, 21, 30, and 52] related to mode of shopping suggested that perceived risk is affected not only by what is purchased but also by how it is purchased. The previous studies concluded that consumers perceive more purchasing risk when buying an item by telephone or mail catalog than when buying in a store or from a salesman. In addition, the level of perceived risk is related to store selection [14, 25, and 31]. That is, consumers who perceive less purchasing risk prefer the specialty store, and low social, high economic risk products to the mall and other types of products.

Based on the literature of past mode of shopping and perceived risk research, it is logical to deduce that consumers perceive more risk in the Internet shopping environment. The direct and most important hypotheses are generated between mode of shopping and perception of risk.

H1: Consumers perceive more risk in the act of buying from the Internet than in buying from stores.

Furthermore, psychological learning theory conceptualization suggests certain interrelationships between perceived risk and the Internet shopping experience. However, the general shopping experience is operationalized in two detailed variables - amount of prior positive shopping experience and total number of purchases. It is reasonable that only a positive shopping experience leads to decrease perceived risk level while negative shopping experience increases perceived risk of future purchasing. In addition, although Srinivasan and Ratchford [53] proved that both the total number of purchases and the amount of positive shopping experience decrease overall perceived risk of automobile buying, two variables may not be positively correlated in the other buying situation. Thus, the direct relationships between the overall perceived risk and only prior positive shopping experience from the Internet is predicted.

H2: There is a negative correlation between the amount of prior positive shopping experience in the Internet and the overall perceived risk level of shopping in the Internet.

### **Purchase Intention and Perceived Risk:**

Purchase intention has been widely used in the literature as a predictor of subsequent purchasing [5]. More specifically, Mitchell, Davies, Moutinho, and Vassos [36] and Wood and Scheer [57] have successfully proved that purchase intention is negatively driven by the perceived risk associated with the purchase. In sum, the previous literature implies the following hypothesis:

H3: The greater the perceived risk associated with the act of buying from the Internet, the lower the future purchasing intention from the Internet.

**Risk-Reduction Strategies:** Risk-reduction strategies are possible to associate with one of the two dimensions of the perceived risk. For instance, consumers might use brand loyalty as a way of minimizing uncertainty of purchase or they might rely on a money-back guarantee as a means of avoiding a financial loss in the case of a purchasing failure.

However, risk-reduction strategies more often aim to reduce the uncertainty component of perceived risk rather than to avoid the adverse consequences that could arise. The reason seems to be directly due to the nature of perceived risk in consumer behavior. In general, consumers can not change unfavorable consequences of their choices easily, while they can change the level of uncertainty in various ways, such as by purchasing well-known brands [49].

Fourteen risk-reduction methods have been selected for this research based on their applicability to Internet purchasing: Brand loyalty, Store image, Information from friends/family, Past experience, Visit/Call local retailer, Store recommendation, Shopping around, Well-known brand, Money-back guarantee, Price information, Warranty quality, TV /Print commercials, Consumer Reports, and Internet newsgroups. The primary goal of this test is on comparing the consumers' risk-reduction strategy preference in two shopping mode.

## **Materials and Methods**

This study had two main objectives: (1) to compare the perceived risk level between Internet

and store shopping, and (2) revisit the relationships among past positive experience, perceived risk level, and future purchase intention within the Internet shopping environment.

In order to achieve the research objectives and test hypotheses, paired sample t-test is used to analyze the mean differences of the individual and overall perceived risk levels in two buying situations. In addition, to analyze the relationships among shopping experiences, perceived risk, and purchase intention variables, Pearson correlation analysis and linear regression are used.

**Sample and response rate:** Convenience sampling method is selected for this research, since respondents have to be computer and internet literate. Computer and internet illiteracy among Tehrani consumers can be observed widely, and would cause gathering uncorrelated data if the number of illiterate members among the selected sample be considerable. Tehrani online shoppers are chosen as the target population. Our sample consists of all the Tehrani individuals who have made an online purchase of computer-related products (hardware or software) within the last 12 months and their names are included in Irpoststore mailing list. At the time of doing this research, Irpoststore had only 2000 e-mail addresses from all of those who had bought something online from one of its 34 subscribed online computer shops since 2 years ago. The reasons why we have chosen "IrPostStore" and an introduction to this firm will be explained in the following paragraphs.

[feedback@irpoststore.com](mailto:feedback@irpoststore.com) is a well-known sponsor for the distribution of the e-mails. It also seems to be a well-known brand amongst Iranian online shoppers. Some factors that helped the brand name might be that it is supporting many successful online shops such as CDkade.com, Shahrenarmafzar.com, Sonycard20.com and so on and it is also introduced as the pioneer of e-commerce in Iran by ministry of commerce in the two past years (before June 2005).

E-mails have been sent to all 2000 individuals from [feedback@irpoststore.com](mailto:feedback@irpoststore.com). The E-mails acted as cover letters that linked the reader to the site, where the e-questionnaire was uploaded. The replies were then collected in two weeks;

we reached the rate of 393 responses. However, this number of records has reduced to 360 records after editing was performed.

**Operationalization of Perceived Risk:** Overall perceived risk is the main dependent variable chosen for this research. Overall perceived risk provides a comprehensive explanation about how the consumers perceive the purchasing situation. The primary emphasis of this study is on comparing the level of perceived risk in two different buying situations, rather than among individual products (although the scale permits measurement of product differences). Measuring perceived risk by single dimensional dual-components framework does not provide a detail explanation for the risk perception in a specific buying situation where the consumer engages in risk trade-off behaviors [28].

The techniques employed to measure overall perceived risk used in this study are modeled from use in previous studies [6, 18, 20, 28, 38, 41, and 45]. In particular, perceived risk has been hypothesized to involve a combination of six underlying dimensions - social, psychological, monetary, functional, physical, and convenient. Thus, in this study, the perceived risk scores for all six dimensions are combined to measure overall perceived risk as in:

$$\text{Overall Perceived Risk} = \sum_{i=1}^6 \text{PL} * \text{IL}_i$$

where

PL = Probability of Loss;  
 IL = Importance of Loss;  
*i* = Type of loss.

The probability and importance of each loss is operationalized as a seven-point scale anchored in an improbable-probable and unimportant-important judgment context. High scores on the scale suggest that the respondents perceive the types of risks are associated with the purchase of a

specific product, whereas low scores indicate that the expectation of negative consequences is low.

The statements associated with each of the six dimensions are the same in form as the following social risk operational statement:

Extremely = 1      Slightly = 5  
 Moderately = 2      Neither = 4  
 Moderately = 6  
 Slightly = 3  
 Extremely = 7

What is the probability that a purchase of a COMPUTER-RELATED PRODUCT (Software/ Hardware) from the Internet will lead to SOCIAL LOSS for you because others would think less highly of you?

Improbable 1\_\_\_\_ : 2\_\_\_\_ : 3\_\_\_\_ : 4\_\_\_\_ :  
 5\_\_\_\_ : 6\_\_\_\_ : 7\_\_\_\_ Probable

- If this SOCIAL LOSS happened to you, it would be

Unimportant 1\_\_\_\_ : 2\_\_\_\_ : 3\_\_\_\_ : 4\_\_\_\_ :  
 5\_\_\_\_ : 6\_\_\_\_ : 7\_\_\_\_ Important

**Shopping Experience and Purchase**

**Intention:** Positive shopping experience and total number of purchase are measured as in Srinivasan and Ratchford’s research [53]. However, in this study, positive shopping experience is separately measured in the Internet and stores. Also, in purchase intention, respondents are asked how likely it is that they will make a purchase of the computer-related products (Software or Hardware) from the Internet within the next twelve months (Likely to buy).

Both positive shopping experience and purchase intention are measured on five-point scales anchored in unlikely-likely/unsatisfactory-satisfactory. Sample questionnaires appear below:

- Total number of purchases:  
 How many purchases have you made from the Internet in the last 12 months?  
 0       1-5       6-10  
 11-15       16-20       20+

- Positive shopping experience:

Overall, your shopping experience from the Internet/stores for computer-related products (hardware or software) was

(Very Dislikable Dislikable Acceptable Likable Very Likable No Experience)

- Purchase intention:

Overall, how likely is it that you will make a purchase of computer-related products (hardware or software) from the Internet within the next 12 months?

(Very Unlikely Unlikely Moderately Likely Very Likely)

**Procedure:** The respondents are linked to an e-questionnaire set so as to: (1) rate the amount of individual six perceived risk dimensions they felt present in a purchase of computer-related products from the Internet and from the store and indicate proper risk-reduction strategies in the Internet buying situation; (2) indicate amount of past buying experience and rate future purchase intentions from the Internet for computer-related products (hardware or software); and (3) provide some demographic information.

## Results

The data for this study were obtained through a mail survey of those Tehrani citizens who had used and made a purchase on the Internet from one of the 34 Irpoststore-registered online computer shops within the last 12 months. A total of 360 completed e-questionnaires from the respondents who had the Internet purchasing experience were used for the analysis.

In the collected sample, 77% of the respondents were male, 47.5% were in the 18-24 age group, 41.2 % of the respondents had bachelor's degrees, and 57.2% of the respondents had 1-5 online purchase experience. As for the type of risks they perceived most, four specific risks were found to be related to shopping in the Internet; monetary risk, functional risk, convenience risk, and physical risk. Overall only monetary risk was found to be a determinant factor in Internet shopping overall.

### Hypothesis 1

Table 2 shows the statistics for paired sample test. Based on the results from table 3 and table 4, the hypothesis that consumers perceive higher risk for Internet shopping than in-store shopping is well supported. The paired sample t-test showed that there is a significantly higher level of risk perceived by the subjects who were assessing Internet shopping than those who were assessing in-store shopping ( $p\text{-value} = 0.000 < 0.05 = \alpha$ ).

Table 2. Paired Sample Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Internet Overall Risk	4.6250	360	1.48002	.07800
Store Overall Risk	2.5833	360	.91032	.04798

Table 3. Paired Sample Correlations

Pair 1	N	Correlation	Sig.
Internet Overall Risk vs. Store Overall Risk	360	.487	.000

Table 4. Paired Sample Test

Pair 1	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Deviation	95% Confidence Interval of the Difference				
				Lower	Upper			
Internet Overall Risk – Store Overall Risk	2.0417	1.30606	.06884	1.9063	2.1770	29.660	359	.000

**Hypothesis 2**

Hypothesis 2 predicted that there would be a negative correlation between the amount of prior positive shopping experience in the Internet and the overall perceived risk level of shopping in the Internet. This was supported. The relationship between the overall perceived risk and the amount of prior positive shopping experience in the Internet was assessed using Pearson Correlation Analysis.

Table 5 shows that overall perceived risk is negatively correlated with the amount of prior positive shopping experience in the Internet (R=-0.663, P=0.000).

Thus generally, as the amount of positive shopping experience in the Internet increases, the overall perceived risk level of shopping in the Internet decreases.

Table 5. Correlation Results of Positive Shopping Experience and Overall Perceived Risk in the Internet.

		Internet Overall Risk	Positive Shopping Experience
Internet Overall Risk	Pearson Correlation	1	-.663(**)
	Sig. (2-tailed)	.	.000
Positive Shopping Experience	N	360	360
	Pearson Correlation	-.663(**)	1
Positive Shopping Experience	Sig. (2-tailed)	.000	.
	N	360	360

\*\* Correlation is significant at the 0.01 level (2-tailed).

Also, the results of regression analysis in table 6 show that the coefficient of determination is 0.44; therefore, about 44% of the variation in the overall perceived risk level of internet shopping is explained by the positive shopping experience in the Internet.

Table 6. Results of Regression Analysis (model summary and ANOVA)

Model		Sum of Squares	df.	Mean Square	Adjusted R Square	F	Sig.
1	Regression	196931.632	1	196931.632		282.755	.000(a)
	Residual	249338.143	358	696.475	.440		
	Total	446269.775	359				

a Predictors: (Constant), Positive Shopping Experience

b Dependent Variable: Internet Overall Risk

Besides, Since p-value  $\approx 0.000 \leq 0.05$  (Table 7), At the  $\alpha = 0.05$  level of significance, there exists enough evidence to conclude that the slope of the population regression line is not zero and, hence, that positive shopping experience in the Internet is useful as a predictor of overall perceived risk level of internet shopping.

Table 7. Results of Regression Analysis (Coefficients)

Model		Standardized Coefficients	Unstandardized Coefficients		t	Sig.
		Beta	Std. Error	B		
1	(Constant)		3.970	189.709	47.791	.000
	INTEXPER	-.664	1.646	-27.683	-16.815	.000

a Dependent Variable: COMPOSIT

**Hypothesis 3**

Hypothesis 3 predicted that the greater the perceived risk associated with the act of buying from the Internet, the lower the future purchasing intention from the Internet. This was supported. As reported in table 8, total purchasing intention is negatively correlated with the total overall perceived risk (R=-0.545, P=0.000).

Thus generally, as the amount of overall perceived risk in the Internet shopping decreases, the consumer's purchasing intention increases.

Table 8. Correlation Results of Future purchasing intention and Perceived Risk in the Internet

		INTINTEN	COMPOSIT
COMPOSIT	Pearson Correlation	1	-.545(**)
	Sig. (2-tailed)	.	.000
	N	360	360
INTINTEN	Pearson Correlation	-.545(**)	1
	Sig. (2-tailed)	.000	.
	N	360	360

\*\* Correlation is significant at the 0.01 level (2-tailed).

Also, the results of regression analysis (table 9) show that the coefficient of determination is 0.30; therefore, about 30% of the variation in the total purchasing intention from internet is explained by the total overall perceived risk.

Table 9. Results of Regression Analysis (model summary and ANOVA)

Model		Sum of Squares	df.	Mean Square	Adjusted R Square	F	Sig.
1	Regression	85.536	1	85.536		151.248	.000(a)
	Residual	202.461	358	.566	.295		
	Total	287.997	359				

a Predictors: (Constant), COMPOSIT  
b Dependent Variable: INTINTEN

Besides, Since  $p\text{-value} \approx 0.000 \leq 0.05$  (Table 10), At the  $\alpha = 0.05$  level of significance, there exists enough evidence to conclude that the slope of the population regression line is not zero and, hence, that the total overall perceived risk is useful as a predictor of total purchasing intention from internet.

Table 10. Results of Regression Analysis (Coefficients)

Model		Standardized Coefficients	Unstandardized Coefficients		t	Sig.
		Beta	Std. Error	B		
1	(Constant)		.149	4.708	31.690	.000
	COMPOSIT	-.545	.001	-.014	-12.298	.000

a Dependent Variable: INTINTEN

## Preference for Risk-reduction Strategies

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 (see Table 11). “Consumer reports”, “store recommendation”, “shopping around” and “store image” were the least referred to strategies for Internet shopping.

Table 11. Risk-Reduction Strategies

No.	Risk Reduction Strategy	Frequency	No.	Risk Reduction Strategy	Frequency
1	Money-back guarantee	360	8	TV/Printed commercials	15
2	Past experience	360	9	Brand loyalty	15
3	Information from friends or family	360	10	Internet news groups	7
4	Visit/Call local retailer	312	11	Consumer reports	0
5	Quality of warranty	305	12	Store recommendation	0
6	Well-known brand	42	13	Shopping around	0
7	Price information	24	14	Store image	0

## 5. Discussion

The findings revealed that male internet shoppers are significantly more than female internet shoppers. This outcome complies with Li et al. [32] and Technowledge Asia’s results (as cited in [29]). Considering Donthu’s study [17] in this regard, we may conclude into further answers. Donthu found that internet shoppers do not differ with non-internet shoppers (just internet users) on gender. Thus the difference on gender, which we found in internet shoppers’ population, might have its roots in a difference on gender that exists in internet user’s population. Literature seems to support this idea, as well. As Qureshi et al [42] state males are more interested in learning about computers than females and Teo [56] mentions that females are more likely to experience technostress than males.

Yet, youngness of the Tehrani internet shoppers could be related to Iran’s overall young population. It could also be related to marketing strategies of online shops in Tehran. For instance, they may just introduce e-shopping in some special web sites that have young visitors. In support of this statement, it is important to notice that online shopping is still not a well known phenomenon in Tehran and we

can see from the results that most e-shoppers have got familiar with it through internet advertisements. Another marketing strategy that may attract just young people could be the kind of products that online shops offer on their web sites. A further research, which investigates the Tehrani internet user's characteristics, would make a much more clear understanding of what is exactly happening in regard with age variable.

The main findings of this research clearly showed that Tehrani consumers perceive more purchasing risk when they are buying in the Internet than when buying similar products in stores. This simple relationship explains a lot of what we see in the growth of Internet shopping. The birth and growth of Internet retailing led to predictions of dramatic and fundamental changes in the way consumers shop and retailers do business [3, 46]. These predictions were based on what we now see as a misunderstanding that mode of purchase on the Internet was neutral. The reasoning for predicting the fundamental change for retail stores was compelling in a logical way. Given the same product (a shirt) and two possible modes of purchase (store versus Internet) the consumer would choose the one that was easier and cheaper. Everything else being equal, that would be the Internet. What the experts did not consider was that the consumer perceives differing modes of purchase differently (the store is not the catalog which is not the Internet). Catalogs have not replaced the store. The Internet will not replace the store. And this research shows clearly that one of the reasons for the lack of purchase in the Internet may be that a priori the consumer perceived the Internet as a more risky purchase environment. This was particularly the when they are buying personal products.

Four specific risks were found to be related to shopping in the Internet; monetary risk, functional risk, convenience risk, and physical risk. Overall only monetary risk was found to be a determinant factor in Internet shopping overall. Thus the greatest barrier to Internet shopping appears to be the perceived risk that the consumer will lose their money.

Past research shows clearly that since risk is related to purchase probability, risk reduction leads to increased purchase probability [57]. One of the main factors leading to reduced risk perception has been the nature of the shopping experience. The more positive the past shopping experience the lower the perceived risk and therefore the greater the purchase probability [53]. In this study, this finding was replicated in the Internet shopping environment; consumers who had more positive past experiences shopping in the internet were more likely to say they would shop in the Internet again in the future.

Risk-reduction strategies are adopted by consumers as they think about purchase or used by marketers to intervene the consumer decision process to increase the probability of purchase. There is a range of past research that shows a number of different potential strategies and how differing purchase decisions, situations, and products are related to differing internal strategies to lower risk [16, 24, 45, and 48]. These past studies suggested a methodology and a set of categories to study risk reduction strategies in the Internet environment. The results of this study show the success of this approach and lead to implications that will be discussed in the implications section. The findings from this study showed that Tehrani consumers rely on strong money-back guarantee, their previous purchasing experience, information from friends or family, and visit/call local retailer to reduce their perceived purchasing risk in the Internet.

## 6. Conclusion

Managerially, this research provides marketers with the importance of the consumer's risk perception and associated risk-reduction strategies in the Internet shopping environment. For marketers, awareness of the attributes of risk perception is important because consumers' perceived risk level becomes a crucial factor in Internet purchasing. In response to the specific findings of this research, if marketers desire to increase purchasing, they must attempt three things.

First and foremost marketers and retailers must realize that the Internet is not a neutral channel but one that a priori is seen by consumers as more risky. Since risk lowers the probability of purchase retailers and marketers must eliminate and reduce the perception of risk and the probability of risk at each and every opportunity.

Marketers must know which risk-reduction strategy is important to consumers in the Internet to reduce their concerns more specifically. Providing an information navigation facility based on such risk-reduction strategies as money-back guarantee, desirable purchasing experience, etc. decreases consumers' perceived risk and increases their purchasing in the Internet.

Second, the marketers must provide a good service to consumers to build positive shopping experience in the Internet. The result of previous research revealed that 68 percent of customers leave because of bad service experience [37]. Therefore, marketers are catering to the need of consumers in the Internet by supporting consumers as they build good experiences for product purchasing.

Furthermore, the number of male internet shoppers exceeds the female ones far behind. For that reason, more concentration can be paid on what men buy, at the moment. Yet, according to different studies, female shoppers will increase in the near future. So, the internet shops should be conscious in this regard and adjust their offering as the e-shoppers characteristics/demographics and accordingly demands change, by the passage of time.

**Limitation:** Despite the fact that there was both conceptual and empirical support for the variables and models in this research, this research has some limitations associated with generalizing these findings.

A very limited number of products were employed to measure Tehrani consumers' risk perception and related issues in the Internet. Thus, compared with the complete set of other studies that in totality employed a wide range of products, the results of this research are limited to just computer-related products.

In addition, this study has mainly used mean-variance analysis to show perceived risk differences and related issues. Clearly, there are other methodologies identifying the importance and attributes of consumers' risk perception in the Internet.

This study clearly did not exhaust the variables that might be related to Internet shopping and perceived risk. Purchasing frequency, price, time pressure, and store information level that influence consumers' purchasing risk perception clearly exist and should be tested in future studies. Demographic aspects of online consumers and shopping are also interesting. In addition, there may be risk perception differences based on demographic factors such as gender, income, education, and Internet familiarity level. Thus, more research is called for based on employing more products, developing better measurement scale, and refining the analytical tools for more comprehensive explanation of online purchasing behavior.

Finally, this study was limited to looking at Tehrani consumers who had some Internet shopping experience; at least one purchase in the past 12 months. The relations found might be stronger (or weaker) given a study of consumers who have no experience on the Internet. This is clearly important.

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