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## Perceived Risk and Risk Relievers Associated with Online Shopping

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### Abstract

*Even before the Internet, numerous studies of perceived risk and risk relievers in purchasing decisions populated the literature. Since the dot-com bust, studies in this area have declined, yet online shopping continues to increase. This study provides a much needed update on this literature by investigating the different perceived risks associated with online shopping across six product types as well as exploring the usefulness of risk relievers to overcome barriers to online purchasing. The study gives some longitudinal perspective to how these variables are changing over time. In this study, the three main sources of perceived risk are psychological risk, time risk and product performance risk. The key risk relievers are payment security, information about product specification and price. While much has remained the same in the past decade, changes in the way shoppers use the Internet in 2010 provide a sharp contrast to earlier studies.*

### Keywords

electronic commerce, e-business, perceived risk, risk relievers, online shopping

### INTRODUCTION

The Internet has revolutionised the way the world shops. For millions of shoppers, the Internet offers opportunities for making purchases easily and simply. The Internet also enables consumers to gather information on products and services in order to make a more informed purchase decision, either online or in a brick-and-mortar shop. It is these decisions that are the focus of this study -- despite the phenomenal growth in Internet usage, barriers exist which prevent these Internet users from purchasing online. Additionally, online purchases continue to be dominated by a relatively small number of product categories which suggests that barriers vary across product groups.

From a consumer's perspective, it is suggested that the Internet lowers the costs of product search, but increases costs associated with product examination, payment and post-purchase care (Liang and Huang 1998). While e-commerce promises great potential through a reduction in transaction costs, the reality is that e-commerce has been influenced by a range of new inefficiencies including high abandonment rates of shopping carts, wariness about the identity of the seller and the security of the personal information including credit card details (Chatterjee and Datta 2008).

Why then has e-commerce failed to convert a combination of lower-priced products and access to a broader product range into online sales? Why have some products succeeded to a greater extent than others? What can marketers do to overcome these perceived risks in order to succeed in an online environment? What Web site features do consumers value when shopping online? The purpose of this study is to investigate the different types of perceived risks associated with online shopping and to explore the relative importance of risk relievers which may help to overcome these barriers.

From this purpose come these research questions:

1. What are the various sources of risk when considering purchasing online?

Specifically, the sources of risk which are examined include the five original dimensions of perceived risk as suggested by Jacoby and Kaplan (1972) – financial, physical, psychological, performance and social – with the addition of time risk (Roselius 1971) and security risk (Ueltschy et al. 2004). This study also offers a comparative examination of perceived risk in different countries and across time.

## 2. What risk relievers are more inclined to reduce the perceived risk associated with online shopping?

As risk is thought to have a limiting effect on online shopping, it is critical that Web site owners design features into their Web sites which will help to eliminate or at least minimise perceived risk. This research assesses the relative importance of 18 risk relievers identified in earlier studies (e.g., Akaah and Korgaonkar 1988; Tan 1999; Cases 2002). This list includes items such as: payment security, money-back guarantees, possibility to exchange products, possibility of viewing the product and special offers. A contemporary perspective of risk relievers for online shoppers is presented and compared with previous research.

As the following literature review suggests, these are not new questions but they have not been explored in recent research and not always in the same study with the same population. The study not only extends research in this area but also provides online shop owners with new and updated insight into factors Internet users associate with online shopping and strategies to reduce risk.

## LITERATURE REVIEW

The literature on e-commerce is vast, but consistent with the purposes of this research this literature review focuses on literature related to perceived risk and risk relievers.

### Perceived risk

Perceived risk has been examined extensively over the last 50 years since Bauer's (1960) seminal work on consumer behaviour. In both the consumer behaviour and psychology literatures, perceived risk has been explained as a multidimensional construct. Specifically, Jacoby and Kaplan (1972) originally identified five types of risk in a pre-Internet context: financial, physical, psychological, performance and social risk. Around the same time, Roselius (1971) identified time loss as a sixth dimension of risk. Together these six components are thought to provide an overall measure of perceived risk and Jacoby and Kaplan's (1972) model has subsequently been validated by others (e.g., Murray and Schlacter 1990) and was cross validated in a subsequent study (Kaplan et al. 1974).

In the context of an online environment, Jacoby and Kaplan's model was extended by Ueltschy et al. (2004) to include security risk, which had been identified by other researchers to be particularly pertinent to an online environment (Liebermann and Stashevsky 2002; Miyazaki and Fernandez 2001). More recent research has found three types of perceived risks to be particularly important in the online environment: financial risk, product risk and security risk (Bhatnagar et al. 2000; Kim et al. 2008). Security risk is considered to cover two individual aspects: privacy and security. Privacy relates to the protection of personal information which is being gathered through various electronic means (Introna and Pouloudi 1999) whereas security is more concerned with the payment methods for online purchases. A summary of each of the identified types of risk is outlined in Table 1.

Table 1. Definitions of Perceived Risk Dimensions

Type of Risk	Definition
Financial	Relates to the loss of money derived from a poor product choice.
Physical	Relates to the safety or health of the purchaser/consumer.
Psychological	Relates to the disappointment derived from a poor product choice.
Performance	Relates to the functional performance of the selected product/service.
Social	Reflects disappointment in the purchaser among his/her peers.
Time	Relates to the amount of time required to purchase a product including time to get it adjusted, repaired or replaced in the case of a bad purchase.
Security	Relates to the misuse of personal information, especially credit card details, as part of completing an online transaction.

As suggested in the purpose statement, a contribution of this study is an comparative analysis of findings from other studies at a different time or different geographical region. In this regard, Ueltschy et al. (2004) undertook a cross-national study of perceived consumer risk towards online purchasing across Canada, the United States and the United Kingdom. These three countries were selected based on having English as a common language (Canadian respondents were restricted to English speakers) and being culturally similar based on Hofstede's (2001) cultural paradigm. As an English speaking country, New Zealand has a close cultural fit with the three countries selected by Ueltschy et al. – all four countries rated in the same cluster in the same quadrant of Hofstede's uncertainty avoidance – power distance matrix (Ueltschy et al. 2004).

For the purposes of comparability, this research study includes the three products used by Ueltschy et al (airline tickets, computers and clothing) and a similar methodology. A summary of the average risk value for each of the three products measured by Ueltschy et al is displayed in Table 2.

Table 2. Sources of Risk from Online Shopping in Canada-UK-US

Source of Risk	Airline Tickets	Clothing	Consumer Electronics
Financial	2.60	4.18	3.51
Performance	2.94	3.63	3.32
Physical	1.27	1.21	1.31
Psychological	0.76	1.71	0.98
Social	0.58	0.80	0.73
Time / Convenience	2.51	3.38	3.23
Security	4.09	4.15	4.11
Overall	2.11	2.49	2.19

Source: Ueltschy et al. (2004) (overall risk calculated from data in the research)

### Risk Relievers

Risk relievers have been defined as “a device or action, initiated by a buyer or seller, which is used to execute one of two strategies of risk resolution” (Roselius 1971, p. 56). The two strategies referred to in this definition are: to reduce perceived risk by either decreasing the probability of failure or by reducing the severity of loss and to shift from one type of risk to one for which the consumer has more tolerance. Roselius identified 11 risk relievers including endorsements, brand loyalty, major brand image, private testing, store image, free samples, money-back guarantees, government testing, shopping, expensive model and word of mouth. This list was expanded following the research of Derbaix (1983) to include the advice of a salesperson. More recently, Greatorex and Mitchell (1994) supplemented the list to include special offers, information on the package, the purchase of a cheaper brand and endorsement by consumer magazines. While these earlier studies related to home shopping in general, three subsequent studies have looked specifically at the relative importance of risk relievers in the electronic shopping context (Cases 2002; Tan 1999; Van den Poel and Leunis 1999).

In reviewing the key findings of these three studies related to online shopping, the original list of risk relievers proposed by Roselius (1971) remains relatively unchallenged. Tan (1999) and Van den Poel and Leunis (1999) both examined the list of risk relievers as suggested by Roselius in 1971 whereas Cases (2002) first examined if the Internet caused new forms of risk relievers to appear. Rather than create new risk relievers, this latter study found that it was “more appropriate to speak of the adaptation of known relievers to this new mode of shopping since the nature of the risk reliever itself seems to be preserved (i.e., reputation, experience) even if the mode of expression may be modified (i.e., chat rooms, email)” (Cases 2002, p. 380).

Cases examined the relative importance of various risk relievers when purchasing a jacket online and identified the three most important risk relievers as: payment security, money-back guarantees and the possibility to exchange the product. This result is hardly surprising given they relate to two characteristics of online purchasing (i.e., providing credit card details online and purchasing a product sight unseen). At the other end of the rankings, asking friends and family, the ability to communicate with a salesperson, viewing advertisements from the vendor and chatrooms were judged to be of little use when buying online. As Internet shopping advanced, additional risk relievers such as customer forums, product reviews and even social media sites such as YouTube and Facebook can better inform customers and reduce risk in the online shopping marketplace.

Money-back guarantees and the ability to exchange goods were also identified as important risk relievers in studies by Akaah and Korgaonkar (1988) and Van den Poel and Leunis (1999). Further, when examining the importance of money-back guarantees between online buyers and non-buyers Cases (2002) found a money-back guarantee to be more important to non-buyers than to those that had already made a purchase online.

Risk relievers to be examined in this study follow those examined by Cases (2002) as shown in Table 3.

This literature review concludes by presenting a simplified conceptual framework for the research, shown in Figure 1.

Table 3. Risk Relievers in an Electronic Shopping Context

Risk Source	Risk Reliever
Product	Information from merchandising
	Price information
	Past experience with the product
	Comparison of products
	Seeing the product in advance
	Buying a well-known brand, brand loyalty
Remote transaction	Possibility of exchanging product
	Money-back guarantee
	Existence of a local retailer/store/package delivery point
	Being able to speak to a salesperson by phone
Internet	Payment security
	Word of mouth in chat rooms etc
	Remote contact (email, web cameras, etc)
Web site	Web site reputation
	Past experience, familiarity with Web site



Figure 1: Conceptual Framework for Relationship Between Risk and Intention to Purchase

## RESEARCH DESIGN

The methodology selected for any research project needs to be appropriate for the project's purpose. For this study, a quantitative survey and a Web-based questionnaire were determined to be the most appropriate methodology and data collection strategy to reach the sampling population of Internet users aged 18+ especially because Internet access is a prerequisite for shoppers at e-commerce Web sites. Additionally, a Web-based survey provides access to a large number of respondents in a quick and cost effective manner (Boyer et al. 2002). A Web-based (online) survey also maintains consistency with the environment in which e-commerce transactions actually take place, provides good geographical reach, typically receive a good response rate and helps to minimise interviewer error as responses are recorded electronically and instantaneously.

The sampling unit appropriate for the sampling population is residents of New Zealand over the age of 18 with regular access to an Internet connection. The age restriction of 18 is used as this corresponds with the minimum age for obtaining a credit card – the primary source of payment for online transactions. After collecting key demographic data, the online questionnaire asked respondents to assess each of the seven dimensions of risk (financial, performance, physical, psychological, social, time and security) on a seven-point Likert-type scale anchored by very little chance (1) and very strong chance (7). Based on the comprehensive list of risk relievers developed and tested in pre-Internet studies (e.g., Derbaix 1983; Greatorex and Mitchell 1994; Roselius 1971) and online shopping context (Tan 1999; Van den Poel and Leunis 1999) and following Ueltschy, et al. (2004) this study asked respondents to assess the utility of each of the 18 different types of risk relievers on a seven-point Likert scale ranging from 1 (very unimportant) to 7 (very important).

Prior to launching the survey, the instrument was pilot tested with a small sample of individuals from the target population and small revisions were incorporated into the final survey.

Survey respondents were recruited using a snowball sampling strategy. An electronic mail message that explained the objectives of the survey and which contained a link to the survey instrument was distributed to a number of potential participants. Respondents were asked to forward the message and link onto their friends and acquaintances in order to reach more recipients.

## RESULTS

The survey was accessible for a three-week period during May-June 2010. At the end of the survey period, a total of 194 respondents had completed the survey and after eliminating mostly incomplete and inappropriate responses a total of 183 usable responses were included in the statistical analysis.

### Demographic Profile of Respondents

The gender profile of the respondents was well balanced with 83 (45%) females and 99 (54%) males. The largest age group represented in the sample was 35-44 with 78 respondents, representing 43% of the sample. A total of 161 respondents (88%) of respondents were aged between 25 and 54. The sample consisted of a broad range of educational levels with 41 (22%) having a high school qualification, 57 (31%) undergraduate degree and 67 (37%) postgraduate level. The household income of the respondents was varied, however only 42 (23%) had a household income less than \$70,000 per annum. With the exception of household income, the sample appears to be approximately equivalent to the New Zealand population aged 18 and older who access the Internet on a regular basis.

As expected at this stage of Internet development, the respondents have considerable Internet experience. Sixty percent (110 respondents) had been using the Internet for over 10 years and only 2 respondents have less than one year of experience using the Internet. Respondents are also frequent users of the Internet with 91% (166) accessing the Internet several times per day. Similarly, 18% (33) spent over 20 hours on the Internet per week and almost half (49%; 90) were on the Internet for more than 10 hours per week.

In terms of online shopping behaviour, there was a fairly representative distribution of shopping experience. Only 10 respondents (6%) had not purchased anything over the Internet in the past year; almost equivalent numbers purchased 3-5 items (44; 24%) and 6-12 items (45; 25%); and 35% (64) had made 12 or more purchases. Eighty-five percent (147 of 173 respondents) have been purchasing online for more than two years and 74% (127) had purchased something on the Internet in the past month.

### Perceived Sources of Risk

The analysis of perceived sources of risk begins by examining a range of products commonly purchased on the Internet. The percentage of Internet shoppers purchasing that product in the twelve months ending March 2008 are shown in the top row of Table 4, as determined by Nielsen Online Retail Monitor (Nielsen 2008). In the six products tested, time risk was regarded as the greatest type of risk for three products including consumer electronics and both furniture categories (mean of Likert scale results highlighted in bold). Product performance risk was the major risk factor associated with purchasing health and beauty products online and psychological risk for clothing. Security risk was the largest type of risk associated with purchasing airline tickets online although the score actually represents a fairly low level of risk in total. Overall risk was calculated as an average across the seven individual risk variables and shown in the bottom row in Table 4.

Table 4. Perceived Sources of Risk for Online Shopping

Risk Variable	Airline ticket	Clothing	Health - Beauty	Consumer Electronics	Furniture <\$1,000	Furniture >\$1,000	Overall Risk
% buying on line	54.5%	25.8%	10.2%	9.2%	5.5%	5.5%	---
Financial	1.92	4.04	3.33	3.30	3.44	3.49	3.25
Performance	1.53	<b>4.28</b>	<b>3.59</b>	3.60	3.55	3.54	3.35
Physical	1.26	1.59	3.26	2.38	1.99	1.90	2.07
Psychological	1.86	<b>4.28</b>	3.50	3.60	3.66	3.82	3.47
Social	1.38	2.47	2.19	2.36	2.32	2.44	2.21
Time	1.87	3.82	3.11	<b>3.87</b>	<b>3.82</b>	<b>3.97</b>	3.45
Security	<b>2.26</b>	3.40	3.39	3.50	3.30	3.19	3.20
Overall risk	1.73	3.41	3.20	3.23	3.15	3.19	---

Across all products (rightmost column in Table 4), psychological risk had the highest overall risk score at 3.47, followed closely by time risk. Psychological risk was defined as a feeling of disappointment with themselves due to poor product selection. Given the intangible nature of the Internet, this will remain a challenge especially compared to traditional retail stores. Time risk relates to the overall time spent purchasing the product including any time getting the product adjusted, repaired or replaced in the case of a poor choice. While the Internet offers convenience of being able to purchase products at any time of the day, respondents obviously felt that it can be time consuming to locate and purchase products online and, especially, to wait for the goods to be delivered.

At the other end of the spectrum, the sources of risk that ranked lowest were social risk (2.21) and physical risk (2.07). Whereas psychological risk relates to disappointment with themselves, social risk relates to disappointment in them by their peers. Clearly, being judged negatively by their peers for shopping online was not of great concern. Physical risk relates to the health and safety of the purchaser when using the product and can probably be explained by the fact that when the product is being used, the Internet itself is no longer a contributing factor.

As noted earlier, one of the goals of this study is to update research previously conducted in the area of perceived risks. This section compares the results from the current study with those found by Ueltschy et al. in 2004. Specifically, Ueltschy et al. (2004) tested the seven sources of perceived risk for purchases of airline tickets, clothing and consumer electronics, as has been done in this study with a similar methodology. Table 5 compares results from Ueltschey et al. in the column labelled 2004 with the results for the current study in the column labelled 2010 for each of the three products. Although the comparison groups are different – Ueltschey et al. used online shoppers in Canada, the US and the UK – as noted earlier, all four countries are culturally and linguistically similar and closely linked in Hofstede’s 2001 study of cross-cultural differences.

Table 5. Changes in Perceived Risks: 2004 to 2010

Risk Variable	Airline Ticket		Clothing		Consumer Electronics	
	2004	2010	2004	2010	2004	2010
Financial	2.60	1.92	4.18	4.04	3.51	3.30
Performance	2.94	1.53	3.63	4.28	3.32	3.60
Physical	1.27	1.26	1.21	1.59	1.31	2.38
Psychological	0.76	1.86	1.71	4.28	0.98	3.60
Social	0.58	1.38	0.80	2.47	0.73	2.36
Time	2.51	1.87	3.38	3.82	3.23	3.87
Security	4.09	2.26	4.15	3.40	4.11	3.50
Overall risk	2.11	1.73	2.72	3.41	2.46	3.23

Table 5 shows airline tickets had the lowest overall risk score in both studies (bottom row). Comparing the two studies for airline tickets (columns 2 and 3), risk factors declined with the exceptions of psychological and social risk. These results could be linked to the anxiety that consumers feel when booking flights online that they have selected the correct dates and departure times as psychological and social risk both relate to the emotional impact, of either the consumer or their peers of poor product selection. As noted in Table 4, airline tickets are the most commonly purchased product online. As the Internet is now the most common method of purchasing airline tickets it is not unexpected that the risks of this mode of shopping would have dropped since 2004.

When the sources of risk for clothing are examined (columns 4 and 5 in Table 5), financial risk is perceived as a slight lower risk (4.18 versus 4.04) and security risk is dramatically lower (4.15 versus 3.40). Indeed, across all three product items, some of the largest changes in perceived risk are in security. As the market penetration of both the Internet and online shopping has increased significantly over the past six years, it is not surprising that consumers feel more comfortable about the provision of private information online.

The final product for direct comparison with Ueltschy et al is consumer electronics (columns 6 and 7 in Table 5). The pattern of differences for consumer electronic follows a strikingly similar pattern to that shown for clothing. financial risk and security risk have dropped and all other sources of perceived risk have risen.

### Risk Relievers

The relative importance of various risk relievers was measured on a seven-point Likert type scale ranging from very unimportant (1) to very important (7). The relative importance of the 18 risk relievers used in this study was based on the mean score of the variable. The mean and standard deviation for the 18 risk relievers are presented in descending order in Table 6.

The top three ranked risk relievers and their mean are payment security (6.09), provision of product specification information (5.72) and pricing (5.65). With an average score greater than 6 (out of a possible 7) customers expect vendors to protect their personal details when transacting online. At the other end of the scale, the risk relievers which were ranked least important were having a physical store in their area (3.92), provision of advice from peers (3.90), viewing advertisements from the vendor (3.62) and chat facilities on the Web site (3.08).

Table 6. Impact of Risk Relievers on Intention to Shop Online

Rank	Risk Reliever	Risk Source	Mean Score	Rank (Cases 2002)	Difference in Ranking
1	Payment security	Internet	6.09	1	--
2	Information about product specifications	Product	5.72	10	+8
3	Price	Product	5.65	6	+3
4	Reputation of the Web site	Web site	5.55	7	+3
5	Ability to communicate with seller	Remote transaction	5.43	16	+11
6	Ability to exchange the product	Remote transaction	5.41	3	-3
7	Past experience with the Web site	Web site	5.34	8	+1
8	Money-back guarantee	Remote transaction	5.31	2	-6
9	Ability to compare similar products	Product	5.22	9	--
10	Buying a well-known brand	Product	5.14	14	+4
11	Special offers / sales promotions	Product	4.98	12	+1
12	Ability to view the product prior to purchase	Product	4.86	4	-8
13	Brand loyalty	Product	4.62	11	-2
14	Ability to view the product in a store	Remote transaction	4.51	5	-9
15	Seller has a store in my area	Remote transaction	3.92	13	-2
16	Asking friends and family for advice	Various	3.90	15	-1
17	Viewing advertisements from seller	Various	3.62	17	--
18	Chat facility on the Web site	Internet	3.08	18	--

A research objective of the second research question was to explore the relative changes of various risk relievers when considering an online purchase. Table 6 presents a comparative summary of the two studies with the source of risk identified along with the ranking from Cases' study and the difference in rankings across the two studies.

Across both studies, the highest ranked risk reliever was payment security. This demonstrates that eight years on from Cases' original study, consumers are still concerned with security issues surrounding the provision of personal details online, including credit card details. Following payment security, this study ranked information about the product specifications and price as the second and third most important relievers. The source of risk for these two risk relievers is the product itself which illustrates the need to show consumers exactly what they are buying and that there needs to be a price advantage to purchase online. Within the top 5 risk relievers from this study, the greatest difference compared to the earlier study was the ability to communicate with seller – ranked 5<sup>th</sup> in this study compared to 16<sup>th</sup> in the earlier study.

At the other end of the scale there were again similarities between the two studies with reading advertisements and chat room on the Web site ranked as the two least important risk relievers. When considering Web site design, these risk relievers are least likely to help overcome any perceived risk.

In examining the movements of rankings between the two studies, 4 of the 7 risk relievers ranked lower in the current study compared to the earlier study had remote transaction as the source of risk. This included risk relievers such as being able to view the product (either visually online or in a store) before purchase, the ability to exchange the product and money back guarantees. This suggests that consumers are more aware and accepting of the Internet as a method of purchase now than they were in 2002.

## CONCLUSION

This concluding section presents a summary of the key findings of this study by answering the research questions posed at the very beginning, as well as a list of identified limitations to this study and suggestions for future research.

*What are the various sources of risk when considering purchasing online?*



A key finding of this study is that the three main sources of risk when considering online purchases are psychological risk, time risk and product performance risk. Psychological risk relates to the feeling of disappointment in the online shopper due to a poor product selection. While psychological risk is also present in a traditional retail environment, it is accentuated in an online setting due to the intangible nature of online shopping. Time risk relates to the overall time spent purchasing the product including time to get a product delivered on time and/or adjusted, repaired or replaced in the case of a poor product choice or performance. While the Internet has the potential to save consumers time due to the convenience of being able to shop around the clock, with time risk ranked second highest of all sources of risk this potential saving is counterbalanced by time following up the transaction in case of a problem.

*What risk relievers are more inclined to reduce the perceived risk associated with online shopping?*

The results of this research reveal that the risk relievers that best address perceived risk are payment security, information about product specifications and price. The top ranking for payment security is consistent with an earlier study (Cases 2002) and recognises that in a faceless trading environment such as the Internet, protection of consumer's private information and credit card details remains paramount. Second, online shop owners must ensure that their Web site does the fundamentals well by ensuring that products are displayed in a manner which provides full product specification to consumers. Third, price is a major contributor to risk alleviation, which suggests that consumers are more willing to purchase online if there is a price advantage. This factor acknowledges that risks can be overcome if there is also a perceived benefit.

At the other end of the spectrum it was concluded that the risk relievers that were least important to consumers were asking friends and family for advice, viewing advertisements from the vendor and having chat facilities on the Web site (these all averaged less than four on a seven-point scale). The ranking of viewing advertisements and chat room facilities as the two least important risk relievers is again consistent with findings from an earlier study (Cases 2002). Interestingly, while a chat facility on the Web site was not rated as important, the ability to communicate with the vendor via phone or email was ranked 6<sup>th</sup> in the current study compared to 16<sup>th</sup> in the earlier study. This suggests that personal contact is still important to Internet shoppers and may in fact compensate for the lack of face-to-face contact.

### **Limitations of the Research**

Despite efforts to ensure that the methodology of the current study provided reliable and robust results there were both some anticipated and unanticipated limitations of this research.

The current study only measured perceived risk for a small selection of product categories without inclusion of any services which by their very nature are intangible and therefore could be argued are easier to sell online than products. The product categories studied included a number that were known to have high online sales (e.g., airlines sales) along with a number that do not sell so well online (e.g., furniture). Variability in the results of perceived risk across the six product categories studied suggests that product characteristics do have an impact on the perceived level of risk and therefore it is difficult to draw conclusions for products not included in the study.

This study has a large comparative component and for this reason it followed methodologies used in previous studies. The Internet has experienced rapid growth over the past decade and therefore it cannot be assumed that what was relevant to consumers in 2004 and 2002 are still relevant today. Equally, the methodology used for calculating overall risk assumed an equal weighting of all seven sources of risk whereas individual consumers are likely to weight the various sources of risk unequally, which would affect the importance of each risk type. While this would have been a more appropriate methodology to follow it was beyond the scope of the current exploratory study.

### **Suggestions for Further Research**

The Internet has experienced phenomenal growth since it was first introduced and the reward for understanding and overcoming the perceived risk associated with online shopping is massive. This study has illustrated that variations do exist across product categories and that it is therefore hard to draw conclusions from this study for products or services which were not included. It is suggested that any marketing manager looking to develop an online strategy should follow a similar methodology for their specific brand or product in order to better understand the risks specific to that product or service.

Second, this exploratory study focused specifically on the perceived risks associated with online shopping. In addition to perceived risk, consumers are likely to perceive a number of benefits with online shopping. Success is expected where the perceived benefits outweigh the perceived risks. It would therefore be recommended that additional research be undertaken which looks at the net effects of these two sides of the coin.

Third, with the growing use of social media on the Internet, a follow-up study to assess the use of Web 2.0 tools such as blogs and social networking sites as risk relievers would promise to be an interesting extension of the current research.

### Conclusion

The contribution of this research has been to provide academic researchers, Web site designers and especially online shop owners with insight into current thinking in how online shoppers perceive risk and risk relievers in the current e-commerce environment. As a field of study, e-commerce research has a rich and varied history but a declining number of studies. This study has extended that history into the current era.

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