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The Effect Of Online Customer Reviews On Customer's Perceived Risk Associated With Online Leisure Hotel Booking

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PURDUE UNIVERSITY
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By Biwei Yang

Entitled THE EFFECT OF ONLINE CUSTOMER REVIEWS ON CUSTOMER'S PERCEIVED RISK ASSOCIATED WITH ONLINE LEISURE HOTEL BOOKING

For the degree of Master of Science

Is approved by the final examining committee:

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Approved by Major Professor(s): Chun-Hung Tang

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Date

THE EFFECT OF ONLINE CUSTOMER REVIEWS ON CUSTOMER'S PERCEIVED
RISK ASSOCIATED WITH ONLINE LEISURE HOTEL BOOKING

A Thesis

Submitted to the Faculty

of

Purdue University

by

Biwei Yang

In Partial Fulfillment of the

Requirements for the Degree

of

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Purdue University

West Lafayette, Indiana

献给我的父亲杨刚，母亲侯敏，大萝卜高阳

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ABSTRACT

Biwei Yang, M.S., Purdue University, December, 2013. The Effect of Online Customer Reviews on Customer's Perceived Risk associated with Online Leisure Hotel Booking. Major Professor: Chun-Hung Tang.

As online shopping is widely used in the hospitality industry, research in this field constantly strives to understand the customer behavior in online purchasing activities. Online customer reviews (OCRs) and perceived risk have been extensively evaluated in previous studies in related with online purchasing. In spite of the large body of work on the topic of OCRs effect on consumer behavior, it is still unclear that how OCRs affect the decision process of the consumers when they make online booking. Due to the intangibility of hospitality or tourism product and the nature of online booking, risk perception is considered as one of the most important factors that impact the buyer's decision. Thus, it is constructive to investigate the effect of OCRs in the context of consumer perceived risk associated with online shopping, in the hope of understanding how OCRs affect the decision process and seeking solutions for the hotel marketers to improve their service as well as the online commenting system.

In this study, we demonstrated a method which investigates the relationship between consumers' perceived risk associated with online leisure hotel shopping and different types of OCRs (core and peripheral). By evaluating perceived risk associated with online leisure hotel booking caused by different hotel attributes, we addressed the

importance of OCRs on various hotel attributes and therefore provided information for E-marketers to fine-tune their E-business strategies in terms of managing proper online customer reviews.

Two hundred surveys were distributed. The instrument contained two parts and one scenario: (1) Demographic information, past experience, and attitudes towards OCRs of the participants regarding online leisure hotel booking. (2) A scenario was given that the participant was planning a trip for his/herself the up-coming vacation. (3) Operational statements were used to evaluate each individual participant's risk perception about his/her most recent online leisure hotel booking experience.

The findings provided exploratory insights about the dimensions of perceived risk identified in the process of online leisure hotel booking, effect of the positive and negative reviews, different OCRs had different implications for different hotel preferences and the magnitudes of OCRs effect for each dimension of perceived risk associated with online leisure hotel booking. Detailed findings were discussed in Chapter 5.

CHAPTER 1. INTRODUCTION

It has been more than a decade since business-to-customer E-commerce was firstly introduced into the hospitality industry. Online shopping is widely used in hospitality industry now. For the first three quarters of 2013, 57% of hospitality purchase was made online, and this number has been grown more than 73% over the past 5 years (Statistic Brain, 2013). Research in this field constantly strives to understand the customer behavior in online purchasing activities.

As Web 2.0¹ being more and more widely received, consumers are able to create their own information about a hotel/resort on the official website as well as other commonly used platforms, i.e. expedia.com and travelocity.com, etc. Moreover, consumer-generated media are now a critical component of corporate publicity in the tourism industry, routinely informing and influencing individual travel purchase decisions (Sparks, Perkins & Buckley, 2013; Gretzel & Yoo, 2008; Lu & Stepchenkova, 2012; Xiang & Gretzel, 2010). Online customer reviews (OCRs), as the major source of word-of-mouth (WOM) used by consumers, allow people to exert both informational and normative influences on the product evaluations and purchase intentions of fellow consumers (Bone, 1995; Ward & Reingen, 1990).

¹ A Web 2.0 site allows users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community, in contrast to websites where people are limited to the passive viewing of content.

The importance of OCRs has been evaluated in the many studies that conclude that positive OCRs generate positive attitudes and increase the possibility of purchase, whereas negative OCRs have the opposite effect (Hong, 2006; Karakaya & Barnes, 2010; Lee, Park and Han, 2008; Steffes & Burgee, 2009). These effects have been noted to be particularly important in the hospitality businesses (Vermeulen & Seegers, 2009; Ye, Law & Gu, 2009). A number of OCR attributes have been examined, including the total amount of OCR interactions (Liu, 2006; Melián-González, Bulchand-Gidumal & López-Valcárcel, 2013), the valence of OCRs (positive vs. negative) (Pantelidis, 2010; Sparks & Browning, 2011; Thorson & Rodgers, 2006; Vermeulen & Seegers, 2009; Ye, Law & Gu, 2009), content type (Sparks, Perkins & Buckley, 2013; Li, et al., 2013), and source of information (Sparks, Perkins & Buckley, 2013; Li, et al., 2013). Likewise, a series of consequences of reading the OCRs have also been investigated, such as purchasing intention (Hsu, Lin & Chiang, 2013), customer satisfaction (Li, Ye & Law, 2013), and customer loyalty (Toufaily, Ricard & Perrien, 2012). In spite of the large body of work on the topic of OCR effect on consumer behavior, it is still unclear that how OCRs affect the decision process of the consumers when they make online booking. Therefore, it is desirable to adapt a well-established evaluation framework to study the mechanism of OCR effect.

Consumer perceived risk has been extensively studied in the past literature and has proved to shape all purchase decisions to various degrees (Bauer, 1960; Cox, 1967; Cunningham, 1967; Mitchell, 1999). Specifically, the risk perceptions of the consumers have been utilized to assess and predict their behavioral intentions during the travel related decision making processes (Rittichainuwat, 2011; Chang & Hsiao, 2008;

Tavitiyaman & Qu, 2013; Lu, 2011). Due to the intangibility of hospitality or tourism product and the nature of online booking, risk perception is considered as one of the most important factors that impact the buyer's decision (Gupta, Su & Walter, 2004). Thus, it is constructive to investigate the effect of OCRs in the context of consumer perceived risk associated with online leisure hotel booking, in the hope of understanding how OCRs affect the decision process and seeking solutions for the hotel marketers to improve their service as well as the online commenting system.

Admittedly, there are many aspects associated with OCRs, i.e. valence, content, source, etc. Among them, source and content are considered to be the two most important factors that the readers use to determine the helpfulness of a particular piece of review (Li, et al., 2013), whereas valence has direct impact on customers buying intentions (Lee, Park and Han, 2008; Steffes & Burgee, 2009). Within the scope of this study, sources of the OCRs are unanimous (generated by tourists) so that the effect from source can be neglected. The content of OCRs on leisure hotels is comprised of multiple aspects, including services, hotel location, room, amenities, price/value, food and beverage, image, security, etc. It is difficult to assess the effect of OCRs on every attribute due to the different primary research interests, market segment studied, attributes included in the survey, design of questionnaire and data analysis method. For the simplicity of analysis, the contents of OCRs are divided into two general categories, comments on core and peripheral attributes (Sparks & Browning, 2011). Previous studies have shown that different hotel attributes have different influence on consumer's intention to pay for a certain hotel (Kim & Han, 2010; Yang, Jou & Cheng, 2011; Wong & Lam, 2002; Bell & Morey, 1997). Therefore, it is also desirable to evaluate the effect of comments about

different hotel attributes (core vs. peripheral) on consumers' perceived risk associated with online hotel booking in order to better understand the relationship between the contents of OCRs and the risk perceptions of consumers.

In this study, we demonstrate a method which investigates the relationship between consumers' perceived risk associated with online leisure hotel booking and different types of OCRs (core and peripheral). By evaluating perceived risk caused by different hotel attributes, we can address the importance of OCRs on various hotel attributes and therefore provide information for E-marketers to fine-tune their E-business strategies in terms of managing proper online customer reviews.

To understand the effect of OCRs on each dimension of risk perception, four research questions were proposed regarding perceived risk, OCRs and hotel attributes. The questions are focused on ways to lower the level of perceived risk associated with online leisure hotel booking.

Research Question 1: What are the most important dimensions of perceived risk associated with online hotel booking and how do they affect online consumer behavior?

According to the literature reviewed on perceived risks, six dimensions have been identified in this study: financial risk, physical risk, performance risk, social risk, psychological risk, time-loss risk. The purpose is to evaluate the importance of each dimension individually in order to identify the significant dimensions that could contribute to the final decision making process. This is how we can build up our assessment tool for overall perceived risk of online leisure hotel booking.

Research Question 2: How do the positive/negative and content of online customer reviews affect consumer perceived risk associated with online leisure hotel booking? How to quantify them?

This research question is designed to test the valence effect of OCRs on overall risk perceptions. Previous studies have shown that positive OCRs have positive impact on consumer's buying intention, whereas negative OCRs negatively affect the purchasing decision (Pantelidis, 2010; Sparks & Browning, 2011; Thorson & Rodgers, 2006; Vermeulen & Seegers, 2009). Moreover, high overall perceived risk leads to low purchasing intention, and vice versa (Yüksel & Yüksel, 2006; Chang & Hsiao, 2008; Tavitiyaman & Qu, 2013). Therefore, it is quite straightforward that positive OCRs lower the level of overall risk perceptions, while negative OCRs raise the level of overall risk perceptions. To better understand the valence effect of OCRs, it is also constructive to examine the magnitude of the effect in both positive and negative scenarios. Moreover, the effect of the content of OCRs should also be examined. Specifically, comments on core and peripheral attributes are assessed in order to understand their different impacts on consumer overall perceived risk associated with online leisure hotel booking.

Research Question 3: Does the effect of OCRs of peripheral attributes rely on OCRs of core attributes?

Core and peripheral attributes of a hotel are not mutually exclusive and cannot exist individually. For instance, a nicely decorated room needs to be accompanied by excellent room service. Likewise, the friendliness of customer service is better recognized together with great hotel facilities. However, there has not been any research on the contingency between the two types of attributes and analysis of such contingency in the context of

perceived risk associated with online leisure hotel booking. Intuitively, peripheral attributes are likely to be contingent on core attributes, because core attributes are something that is physically tangible or can be objectively justified. In contrast, peripheral attributes are intangible and are associated with subjective feelings. Moreover, core attributes provide the fundamental basis for peripheral attributes to occur. If such contingency exist, it can provide guidance for the managerial team of the hotel on where to improve.

Research Question 4: Do comments on core and peripheral attributes impact each dimension of perceived risk associated with online leisure hotel booking differently?

In this study, we demonstrate, for the first time, a method to quantitatively analyze the effect of OCRs on consumers' perceived risk associated with online leisure hotel booking, by combining the current OCR analyses with a well-established perceived risk evaluation framework. The result of this study contributes to understand the mode of action of OCRs on consumer behavior during the decision process of online leisure hotel booking. The findings may also be useful to the hotel managerial team to understand the customers' risk perceptions on each attributes; the hotel website design could be tuned in such way that it focuses more on the most effective attributes. In addition, understanding the specific effects of OCRs on core and peripheral attributes on each dimension of perceived risk associated with online leisure hotel booking may help marketers put their feet into the customers' shoes.

CHAPTER 2. LITERATURE REIVEW

2.1 Introduction

This chapter provides the theoretical underpinnings of the constructs employed in this study through a review of the literature in the areas of online hotel booking, perceived risk and hotel booking decisions.

2.2 Aspects affecting Online Shopping of Leisure Hotels

2.2.1 Stages of Online Leisure Hotel Booking

The emergence and prosperity of Internet has brought about a new medium for businesses to distribute their products and services as well as interact with customers and trading partners (Pi & Sangruang, 2011). It enables interaction and instantaneous communication between individuals and organizations; it also allows real-time global access to information, products or services (Overby and Lee, 2006). The Internet is changing the way consumers purchase, from communication of consumers and obtaining information about product offerings, to the method they purchase and shop services and products (Kim & Lennon, 2008; Darley, Blankson & Luethge, 2010). An early study showed that more and more consumers are moving toward the Internet to find their products and services as well as making the purchases online (Starkov & Price, 2003). Specifically, online purchase continues to grow with the rapid development and

penetration of Internet technology. According to the statistics abstract from US Census Bureau (2012), the value of business-to-consumer (B2C) sales made online in 2010 reached \$424 billion. Comparing to the \$385 billion made in 2009, the yearly growth is 10.3%. An increasing number of companies have started using the internet retails in order to cut marketing costs, thereby reduce the price of their products or services to stay ahead in the highly competitive markets (Darley, Blankson & Luethge, 2010).

Online hotel booking, being one of the most important online service experiences, has also been studied. Generices (ACNielsen, 2005), in which hotel room purchasing is only second to airline ticket purchasing in terms of popularity (Kim, Kim & Leong, 2005). Among the various purposes of online hotel booking, leisure travel contributes most to the expansion of the marketplace. Starkov and Price (2007) suggested that leisure travel is expected to dominate the corporate travel and continue to do so in the near future.

There are several stages that lead to the final decision to book a hotel room, and each individual stage is affected by one or more internal and/or external factors (Wolfe, Hsu & Kang, 2004; Engel, Kollat & Blackwell, 1978; Engel, Blackwell & Miniard, 1986). The first stage involves initial problem ally, the hotel industry plays a major role in the boom of e-commerce. Fourteen percent of the online shoppers are involved in the area of online travel-related products and servrecognition, namely identifying the need of the individual. This process is generally determined by individual characteristics, i.e. motives, value, life style and personality (Engel, Kollat & Blackwell, 1978). Specifically in the case of leisure hotel booking, the individual characteristics are reflected on the individual's choice of hotel type, choice of brand, as well as the psychological and social

reactions as a result of the choice (Wolfe, Hsu & Kang, 2004). Generally, consumer behavior in this stage is similar to that in offline purchasing.

The next stage is the pre-purchase information search (Oorni, 2004; Grau, 2005). Previous research suggested that pre-purchase information search is essential in determination of the final purchase decision (Teo, 2002; Law & Huang, 2006). Consumers search for information for multiple reasons, among which the major reason is to make sure that they get the best deals and make the most proper and informed choice (Teo, 2002). Comparing to the traditional offline purchasing, consumers have a greater variety of resources to choose from and they tend to search till they find a satisfactory website or product (Law & Huang, 2006). Moreover, the pre-purchase information search process is more susceptible to external factors such as social influences, online environment and situational/economic factors (Engel, Blackwell & Miniard, 1986). The body of literature has emphasized consumer's risk perception associated in this particular stage and has demonstrated that such risk perception is directly relevant to consumer's intention to transact (Dash & Saji, 2007; Falk, et al., 2008; Hansen, 2008; Jepsen, 2007; Kim & Lee, 2008; Lin, 2008;).

The third stage is alternative evaluation. At this stage, consumers have a list of tentative choices that match their requirements in various ways, and are in the process of trying to pick the best one. Very few studies have focused on the external factors that impact the alternative evaluation stage (Lee & Lee, 2004; Darley, Blankson & Luethge, 2010). Generally, information overload is considered as a vital factor on this stage, since "online information overload results in less satisfied, less confident and more confused consumers" (Lee & Lee, 2004). In the meantime, Law and Huang (2006) have suggested

that content richness and functionality of the website also play important roles in the alternative evaluation process.

The following stage is booking the hotel—the final decision to purchase; this is the stage that all companies would be interested in when they target their online customers. Purchasing process leads to the outcomes of this decision, resulting in cognitive dissonance, consumption, dissatisfaction/satisfaction, and disinvestment, which will in turn have an impact on the initial problem recognition process.

Compare to offline shopping, the consumer trust has been proved to be more important to online commerce (Gefen, Karahanna and Straub 2003). The notable difference between online and offline consumer markets is the decreased presence of human and social elements in the online environment (Hassanein and Head 2006). Due to the absence of human and social elements, it is relatively more difficult for online consumers to develop trust in a certain website or online vender. The trust issue inevitably raises consumer's risk perception that impedes their purchasing intention. Previous study shows that virtual social presence can be integrated into websites through socially rich descriptions and pictures. This in turn, can positively influence trust and enjoyment of a commercial website, and encourage the consumer to finalize the transaction.

Besides trust, it has been suggested that perceived security and competence are the other two fundamental elements that affects the consumer's opinion towards a website (Flavian and Guinaliu 2006). Moreover, these factors have been proved to be internally interacting with each other rather than mutually exclusive. Trust can be established through three key dimensions: integrity, competence, and security (Cheung and Lee

2006). Another indicator of trust is the competence of e-vendors. E-vendors can improve their reputation of competence through delivering a professional website, including the basic features that facilitate navigation (Roy et al., 2001), correct grammar and spelling, full and accurate information, and good use of graphic design (Cheung and Lee 2006).

2.2.2 Determinants of Online Consumer Behavior

The previous section has elaborated on the different stages on online purchasing behavior and has noted the major differences between online and offline purchasing. To better understand and predict consumer online purchasing behavior, Cheung, Chan and Limayem (2005) have suggested to separate the determinants of online consumer behavior into five major domain areas, including individual/consumer characteristics, environmental influences, product/service characteristics, medium characteristics, and online merchant and intermediary characteristics.

Early literature has focused on the impact of individual/consumer characteristics on the intention and adoption of online shopping (Zmud, 1979; Goldsmith, 2000). As the Internet penetration in the population becomes more and more significant, the IT adoption becomes less of an issue. Instead, attitude, demographics, motivation, perceived risk, satisfaction and trust are getting increasing attention from researchers (Jarvenpaa, Tractinsky & Vitale, 2000; Khalifa & Liu, 2003; Kim & Lim, 2001; Bhatnagar, Misra & Rao, 2000; George, 2002; Vijayasathy & Jones, 2000). Among them, trust and perceived risk (Cases, 2002; Cheung et al., 2005; Childers et al., 2001; Grant et al., 2007; Johnson et al., 2004; Klein and Ford, 2002; Kumar et al., 2005) have been most

extensively investigated in the study of consumer online purchase intention. The body of literature has suggested that perceived risk has direct impact on online purchase intention.

Environment factors refer to the structural influences from the electronic commerce environment, including competition, uncertainty, legal structure, trade restrictions and culture. Such factors, however, are believed to cause consumer behavior difference among online shoppers from different nations, regions or nationalities (Markus & Soh, 2002), however, it has limited impact on consumers within a certain region, which are the scope of this study. Therefore, the environmental factors are not discussed in this thesis.

Product/service characteristics refer to knowledge about the product, product type, the frequency of purchase, tangibility and product quality. Leisure hotel is the type of product that is intangible and the quality of which is difficult to define. As consumers shopping for leisure hotels online, they need to assess the quality of a hotel in terms of physical product management, staff service attitude, cleanliness, facility, amenities, food, etc. The way that the website presents such information largely affects consumers' perception of usefulness, risk perception, value assessment, etc.; which will have the fundamental impact on their willingness to buy.

Medium characteristics are defined in terms of convenience, ease of use, information quality, navigation, security, shopping aids, usefulness and so on (Kaynama & Black, 2000; Khalifa & Liu, 2003; Lee & Lin, 2005). Merchants and intermediate characteristics include brand, privacy and security on the website, control and service quality (Kaynama & Black, 2000; Loiacono et al., 2002; Shchiglik & Barnes, 2004). Both characteristics are associated with website design and brand recognition, which is outside the scope of this study. It is noted that online customer review is considered as an

essential composition of medium characteristics. However, due to its prevalence in the online hotel booking business, having this feature or not is no longer a determinant on consumer behavior. It is the effect of the online customer review that plays an important role in shaping consumer behavior (Gretzel & Yoo, 2008).

2.2.3 The Intangibility of Online Leisure Hotel Booking

The previous section discussed the five major determinants of general online consumer behavior. However, the emphasis should be different for each specific online shopping scenario. For instance, due to the intangible nature of the leisure hotel product and the substantial geographical distances, trial prior to the purchase decision is generally impossible (Oh, Lehto & Park, 2009). Moreover, unlike the tangible product that is also sold online, the leisure hotel product is often times nonrefundable. Both these features lead to the unique consumer behavior associated with online leisure hotel booking.

The most important aspect of the intangible nature of e-commerce is that the shoppers are uncertain about whether products purchased online will fit their needs or perform up to expectations (Weathers, Sharma & Wood, 2007). In the case of buying the tangible product such as a computer or smart phone, the consumer has the option to return the product with little or no cost if it fails to meet the original expectation. Therefore, the performance uncertainty associated with such purchases are relatively low, whereas the experience-oriented products results in higher performance uncertainty which needs to be counterbalanced by providing pictures or, more generally, improving the vividness of information (Weathers, Sharma & Wood, 2007). Similarly for online hotel search, it needs more effort and involves more performance uncertainty due to the

intangibility of the service product. This inevitably raises the perceived risk of the customers and results in them doing more searches before making their purchasing decisions (Kim, Kim & Leong, 2005).

In this study, we focus on the period the customers search information to make a decision to book a hotel online, which belongs to pre-purchase information search stage of online hotel booking.

2.3 Risk and Perceived Risk

2.3.1 Definition of Risk

The well-known “market transparency” hypothesis notes that “when in a product choice situation where all information is available, the consumer has the cognitive capacity of knowing and comparing everything” (Derbaix 1983). However, in reality, consumers have to choose with incomplete information and therefore take a risk of making errors of decision.

Renn and Aven (2009) have defined and rephrased risk as “uncertainly about and severity of consequences or outcomes of an activity with respect to something that humans value”. According to Renn and Aven’s definition, risk contains two main components, one is uncertainty, and the other is severity. Uncertainty is expressed by a tool which may be used by probabilities. For severity, it refers to size, intensity, scope, extension and other possible measures of magnitude; in the meantime, it is related to human value, for example, the lives, the money and the environment.

Risk exists beyond human control, since an individual's perception of risk is that people's judgment about risk and this perception may be influenced by scientific risk assessment, facts, the individual's own assessments and calculations, as well as personality factors such as personal preference for risk-averse behavior, or perceptual factors, like dread. Furthermore, as Ada, Cheung and Rob (2011) have stated that, risk does not exist independently of the person who perceives the risk, and the risk is difficult to manage and measure (Covello, 1983, 1984).

2.3.2 Theory of the Perceived Risk

The development of the theory of perceived risk began in 1960 in the context of customer behavior, Bauer (1960) was the first to introduce the concept of it in marketing "in the sense that any action of a consumer will produce consequences which he cannot anticipate with anything approximating certainty, and some of which at least are likely to be unpleasant" (p. 390). He also stated that "individuals can respond to and deal with risk only as he perceives it subjectively," and only "perceived risk" influences consumers decisions (p. 391). Cox (1967) also suggested that consumers are rarely in a position to know the probabilities associated with purchases exactly. The concept was developed later by Cunningham (1967) defining that consumer's pre-purchase perceived risk has two dimensions: the uncertainty about the outcome and the uncertainty about the consequences of making a mistake (Bauer, 1960; Cunningham, 1967). Thus, the uncertainty-consequence approach has been used by subsequent research to measure perceived risk as a function of the uncertainty of the purchase outcomes and the consequences associated with unfavorable purchase outcomes (Ross 1975). Ross (1975)

also stated: “Given this “two factor” view of risk structure it then follows that risk might be reduced to a “tolerable level” by either or both: (1) reducing the amount at stake and (2) increasing the degree of certainty that loss will not occur: that is, becoming more certain that action consequences would be favorable”.

Hofstede’s (1984) “uncertainty avoidance” theory has been widely applied as a measure of intolerance for risk. However, many researchers interpreted “uncertainty avoidance” as “risk avoidance”, whereas Hofstede’s (1984) suggested that “uncertainty avoidance” does not equal “risk avoidance”. According to Hofstede (1984), risk represents the “percentage or probability that a particular event may happen,” while uncertainty is defined as “a situation in which anything can happen and one has no idea what.” A recent study provided another definition of perceived risk as the uncertainty that consumers face when they cannot foresee the consequences of their purchase decisions (Schiffman & Kanuk, 2000). This definition highlights two relevant dimensions of perceived risk provided by Ross (1975): uncertainty and consequences. Yates and Stone (1992) provided three explanations regarding ambiguity about what risk is: (1) while the risk construct has several distinct elements, individual risk elements are often referred to as the entire risk construct; (2) different situations manifest risk in different ways; and (3) the subjective nature of risk causes disagreement on risk depending on the individual.

Many studies (Goodwin 1991; Bloom, Milne & Adler 1994; Bhatnagar, Misra & Rao 2000) have empirically investigated the construct of perceived risk due to its robustness in explaining consumer behavior. However, the uncertainty-consequence approach is based on prior work in economics and statistical decision theory and is considered to be inappropriate in consumer behavior research (Bettman, 1975; Sjoberg,

1980; Stone & Gronhaug, 1993; Ho et al., 1994). In contrast, the risk-component approach identifies and measures the several basic dimensions of the overall perceived risk in purchasing behavior. The overall perceived risk can thus be predicted by combining several functionally independent dimensions of risk.

2.3.3 Perceived Risk associated with Stages of Purchasing

Generally, perceived risk is extensively studied by many marketing practitioners and researcher. First, the theory of perceived risk has intuitive appeals (Mitchell, 1999) and facilitates marketers understand their customers' needs and concerns. Second, it has a wide range of applications, some of which have been demonstrated to be robust and effective (Cunningham, 1967; Newall, 1977). Third, perceived risk is more confident in explaining consumers' behavior due to their motivations to avoid risks rather than to maximize utility of the purchase (Mitchell, 1999). Fourth, the study of risk relievers can help to increase marketing efficiency by associating resources into applications which consumers find more useful (Derbaix, 1983). Last, examining risk perceptions can generate new product ideas (Mitchell & Boustani, 1993). Therefore, it is constructive to investigate perceived risk and its influences on consumer behavior in a detailed manner.

In general, perceived risk has been confirmed as a dominant effect in the early stages of consumer purchasing process. Traditionally, because consumers recognize a need for a certain service or product, they contemporaneously perceive risk. According to Dowling (1986), customers may continue their purchasing activities when the perceived risk of acquiring a product falls between their maximum and minimum threshold levels. On the one hand, if a consumer's maximum acceptable level has been exceeded by the

perceived risk of a product, the consumer will avoid buying or increasing his risk handling activities. On the other hand, if perceived risk of a product is below the customer's minimum acceptable level, he may also reject because of the desire for variety, boredom, or to obtain a product which includes more risk (Dowling). Researchers (Cox, 1967; Mitchell & Groatorex, 1993; Dowling & Staelin, 1994) claimed that consumers are stimulated by increased perceived risk to search for more information so as to reduce related risk. This notion is supported in information searching and evaluating alternatives stage, when consumers use risk-handling strategies (Cunningham et al., 2004; Murray, 1991).

Some scholars study on different perceived risk dimensions at different stages of the purchasing process, for example, from need recognition to post-purchase behavior (Cunningham et al., 2005). According to the definition of perceived risk as we mentioned before, once a buying decision has been made and a product has been experienced or consumed, customers are facing the consequences of their buying (Mitchell & Boustani, 1994). In the post purchase evaluation stage, precisely speaking, perceived risk may not be meaningful. In that time, consumers evaluate the consequences of buying decisions instead of perceiving risk. According to Murray (1991), this is in the same conceptual line with the definition of perceived risk that as "pre purchase uncertainty". We may find an answer here why perceived risk is always emphasized in the early stages of consumer's purchasing process. Otherwise, if customers encounter negative results, they will try to reduce the cognitive dissonance that consequences (Mitchell & Boustani, 1994). Therefore, this study follows the traditional view of perceived risk that associates with the early stages of the purchasing process.

2.3.4 Dimensions of Perceived Risk

In this study, based on Jacoby and Kaplan (1972) and Roselius (1971), the respective definitions of the six selected risk dimensions are as follows:

(1) Physical risk. Physical risk is the perceived sense of physical pain caused by a level of anxiety associated with the negative outcome of a purchase decision (Salam et al., 1998).

(2) Performance risk. Performance risk is defined as a fear of loss that may be incurred when a brand, product or supplier does not perform as expected (Horton, 1976).

(3) Psychological risk. Psychological risk broadly describes instances where product consumption may harm the consumers' self-esteem or self-perceptions. Psychological risk perception is defined as the experience of anxiety or psychological discomfort arising from anticipated post-behavioral affective reactions such as worry and regret from the purchase decision made (Perugini & Bagozzi, 2001; Dholakia, 2001).

(4) Social risk. Social risk is where individuals are concerned with what others such as reference or peer groups may think. Peer groups exert a large amount of pressure to conform to the rest of the group beliefs (Mitchell, 1992). If the booking process outcome is negative in some way the perceived image of the consumer from others' viewpoints will be negatively impacted, the perceived social risk will keep consumers from making the purchase.

(5) Financial risk. Financial risk is defined as a net financial loss to a customer, including the possibility that the product may need to be repaired, replaced or the purchase price refunded (Horton, 1976). Where the loss of money is an important consideration, financial risk is said to be high (Ha, 2002).

(6) Time-loss risk. Time loss risk may refer to the loss of time incurred due to difficulty of navigation and/or submitting an online order, finding appropriate web pages to purchase from (Forsythe & Shi, 2003). Two leading causes of dissatisfying online experiences that may be thought of as a time loss risk include a disorganized or confusing website and pages that are too slow to download (Forsythe & Shi, 2003).

2.3.5 Perceived Risk Associated with Online Purchasing

Because of the complex and open nature of the internet and related technologies (Peterson, Balasubramanian & Bronnenberg 1997), together with the existence of countless internet vendors (Lim, 2003), the importance of perceived risk to B2C e-commerce will be further increased. Prior studies have found that perceived risk negatively influenced consumers' attitude or intention to purchase online (van der Heijden, Verhagen & Creemers 2003). In order to minimize the customer dissatisfaction in a preventive manner, researches have been conducted for the purpose of elucidating the perceived risks associated with online shopping activities.

The focus on perceived online shopping risks evolves during the last decades. Numerous papers have been published discussing which one/ones of the six dimensions contribute most in affecting people's purchasing intentions (Miyazaki and Fernandez, 2001; Forsythe & Shi, 2003; Crespo, Bosque & Sanchez, 2009). For example, according to Forsythe and Shi (2003), performance risk has been proved as the most frequently reason for not purchasing online; it is a significant predictor in frequency of shopping online. Financial risk is the most consistent predictor of internet patronage behavior. At the same time, time loss risk is considered as a significant predictor for frequency of

searching with intent to purchase and frequency of shopping online, but it is not related to amount spent. Admittedly, different dimensions of perceived risk influence consumer behavior differently in various contexts. However, it is the overall perceived risk that finally affects the purchasing intention of a customer (Mitchell, 1999). Most models have been developed to measure the perceived risk as a whole either by uncertainty-consequence approach (Cunningham, 1967; Peter & Ryan, 1976; Stone & Winter, 1987) or risk-component approach (Deering & Jacoby, 1972; Horton, 1976; Pras and Summers, 1978; Dowling & Staelin, 1994). Therefore, we are aimed at evaluating consumers' perceived risk in all dimensions and using the overall perceived risk as the predictor for consumer behavior.

2.3.6 Perceived Risk in the Travel Industry

Several scholars (Lewis, 1976; Yavas, 1987; Mitchell & Greatorex, 1993) have confirmed that purchasing services is generally perceived more risks than buying products. The distinct features of services are the major reasons behind the phenomenon. As we mentioned before, intangibility is one of the major characteristics which has received the most focus in terms of increasing uncertainty in buying (DeRuyter, Wetzel & Kleijnen, 2001; McDougall & Snetsinger, 1990; Murray & Schlacter, 1990; Zeithaml & Bitner, 1996).

With respect to applications in tourism, there are several studies discussing the relationship between perceived risk and the travel industry. For example, Sonmez and Graefe (1996) have stated their research results concerning the relationship between ten different kinds of risk and the overall perceived risk of U.S. international holiday

travelers. Risk associated with seven different top travel destinations and eight different geographic areas was involved in this research. According to their findings, significant predictors of overall risk perception involve the risk of having problems with transportation or accommodation, becoming entrapped in a country's political turmoil, and being generally dissatisfied with the travel experience (Maser & Weiermair, 2008). With the rapid development of travel industry, nowadays, the problem of having transportation and accommodation is not as big as before. We have Smartphone, GPS and other kinds of electronic map or navigation, car rental and public transportation information and booking system are available online. Hotel booking system has developed a lot; customers could search information of every available hotel in their destinations on hotel or travel agency's website. It is convenience for customers to compare and book. However, the performance of transportation and accommodation and the customer's satisfaction could not be guaranteed. On the one hand, as we mentioned before, online leisure hotel booking is part of online service experiences. Because of the intangible nature of service purchasing, the leisure hotel consumers should be more uncertain about the performance than consumers who are buying common products. In order to identify the importance associated with each dimension of perceived risk with respect to consumer behavior, we hereby make the first hypothesis as follows:

Hypothesis 1: The performance risk is the most important dimension of perceived risk associated with online leisure hotel booking.

2.4 Online Customer Reviews (OCRs) on Different Hotel Attributes

2.4.1 Perception and Definition of OCRs

Consumers interact with various factors that could affect their overall risk perceptions during the process of information search. Previous works have examined the effects of search engines, website design, online travel agencies as well as user-generated content (discussion boards, forums, online customer reviews, blogs, etc) (Starkov & Price, 2007; Sparks & Browning, 2011; Wilson, Marphy & Fierro, 2012; Chaves, Gomes & Pedron, 2012). Recent studies have focused on the user-generated content (UGC), especially the online customer reviews.

OCRs could be defined as peer-generated product or service evaluations posted on company or third party websites (Mudambi & Schuff, 2010). Retail websites give customers the chance to post product or service reviews with content in the form of numerical star ratings and open-ended customer-authorized comments about the product or service. As customers search online for product or service information and evaluate alternatives, they always have access to many product or service reviews from other customers. Customer reviews are increasingly available online for a wide range of services and products (Mudambi & Schuff, 2010). The OCRs are provided in addition to product or service descriptions, such as reviews from experts and personalized advice provided by automated recommendation systems. Each of these options has potentially added value for a prospective consumer.

2.4.2 Effects of OCRs

Long considered to be one of the most influential information sources during the pre-purchase searching stage (Solomon et al. 2010), the effect of word of mouth (WOM) is found to be extraordinarily important, particularly in the hospitality industry. People are more willing to accept and trust information from people who are similar to themselves and are looking for referrals from a “person like me” (Brown & Hayes, 2008; Li, 2009). OCRs, essentially WOM conversations conducted online (eWOM), can reach a significantly vast audience (Brown & Hayes, 2008). According to Dabholkar, Kumar and Benbasat (2006), the presence of OCRs on a website has been shown to improve consumer perception of the usefulness and social presence of the website. Reviews could potentially attract customer visits, increase the time stay on the site, and create a sense of community among loyal customers (Dabholkar, 2006).

The rapid growth of Internet applications on hospitality and tourism leads to an enormous amount of consumer-generated online reviews on different travel-related facilities. According to Gretzel and Yoo (2008), three-quarters of travelers have considered online consumer reviews as an information source when planning their trips. Although experience goods perfectly match the nature of the hospitality and tourism industries, the issue of the impact of online consumer generated reviews on the performance of hospitality businesses has been overlooked by researchers (Dabholkar, Kumar & Benbasat, 2006; Harrison-Walker, 2001). Consumers tend to trust OCR communication with a reference group more than they do commercial information resources in estimation of brand alternatives (Hartline & Jones, 1996; Herr, Kardes &

Kim, 1991; Belén del Río, Vázquez & Iglesias, 2001), frequently respecting OCR as a means to reduce risk in making purchase decisions.

Additionally, Goldenberg et al. (2001) have showed that a consumer's decision-making process is strongly influenced by eWOM. Similarly, Chevlier and Mayzlin (2006) have explored the effect of consumer reviews on books at Amazon.com and Barnesandnoble.com, and have found that eWOM can significantly influence book sales. Ghose and Ipeiritis (2006) have examined the impact of online reviews on a variety of products, and have stated that certain online reviews could reduce cognitive loads of readers and thus result in more sales. Ye, Law and Gu (2009) have suggested that online user reviews have an important impact on online hotel booking.

The OCR's effect on consumer behavior is generally studied with respect to its source, valence and content (Li, et al., 2013; Lee, Park and Han, 2008; Steffes & Burgee, 2009). Valence of OCR is essentially the positive or negative nature of a comment. Previously study has shown that the positive and negative reviews have different levels of impact on customers (Dorlin, 1985; Harrison-Walker, 2001). Generally, the negative information of word-of-mouth communication exerts a stronger influence on the decision-making process than does positive information. However, the stronger influence caused by negative information is always associated with the consumers' strong willingness to express their dissatisfaction after receiving products or services that are far below their expectation (Dorlin, 1985; Harrison-Walker, 2001). As for the OCR readers, their preferences toward positive or negative review are still not clear. Nevertheless, the general trend is obvious that positive OCRs encourage consumer to make purchase

decisions whereas negative OCRs have the opposite effect (Hong, 2006; Karakaya & Barnes, 2010; Lee, Park and Han, 2008; Steffes & Burgee, 2009).

2.4.3 Risk Reduction

A common tenet in consumer behavior is the consumer's need to mitigate the risk and uncertainty involved in purchasing a product or service. According to Mitchell et al. (1999), consumers have an individual tolerance level to risk, which, if reached, will either result in abandonment of the purchasing process or the consumer's engaging in risk reduction. According to Mitchell et al. (1999), risk reduction, or “risk handling”, is most often described as a process by which consumers seek to reduce the uncertainty or consequences of an unsatisfactory decision. Mitchell et al. (1999), in their sophisticated neural network analysis, also have indicated that uncertainty is usually reduced by obtaining additional information and by “the importance of a name that can be trusted”.

In the context of tourism package purchases, Mitchell and Vassos (1997) have found that the one of the most useful risk relieving strategies was reading independent travel reviews. Mitchell et al. (1999) have focused on holiday purchasing and examined the usefulness of perceived risk theory in understanding how consumers reduce risks. Forty-three risky attributes and 15 risk reducers have been identified, and a neural network analysis uncovered a relationship between risk and risk reduction which involved functional, financial and hotel-dominated risks, while the relationship between risk and purchase intention has been mediated by trust in the tour operator and anxiety. Among the risk reduction strategies studies, reading independent travel reviews is noted as the most commonly adopted approach to reduce perceived risk with respect to online

leisure hotel booking. (Mitchell, et al., 1999; Fuchs & Reichel, 2006; Boshoff, 2002; Law, 2006).

2.4.4 Hotel Core Attributes and Peripheral Attributes

Previous studies have shown the importance of OCR on relieving consumer risk perceptions, however, little knowledge is known about the specific elements in OCRs that contribute to risk reduction. The majority of research literature deals with the valence of OCR and its impact on overall perceived risk. In that context, online customer reviews are arbitrarily divided into two categories: positive and negative reviews. For the sake of gaining managerial and academic insights, it is not enough just understand the valence effect of OCRs. The effect of OCR content is essentially more relevant to the hotel managers because it directly reflect consumer's justification on what is important.

Generally, the content of OCR includes different hotel attributes, such as services, hotel, location, room, price/value, food and beverages (F&B), image, security, marketing, etc. Due to the high costs that are involved with investments in the hospitality industry, a lot of effort has been made to reveal which hotel attributes the guests appreciate. Dolnicar and Otter (2003) have pointed out that it is difficult to assess which attributes are most important due to the different primary research interests, market segment studied, attributes included in the survey, designs of questionnaire and data analysis methods. However, Sparks and Browning (2011) have addressed this problem in a different way by dividing the attributes into two main categories, core and peripheral. Core attributes are the essential element of what is on offer, including room, transport, location, F&B, etc.

(Danaher & Mattsson, 1998). Peripheral attributes are the more intangible element such as friendly or polite customer service, experience, etc. (Iacobucci & Ostrom, 1993).

Extensive research into both service expectations and service failures has classified a range of targets that can trigger customer satisfaction or dissatisfaction. Generally, these service targets can be either core system type features or more staff level customer service events (Hoffman & Bateson, 2006). A core failure, in a hotel context, can be an unacceptably small room, or stale taste of the continental breakfast. Peripheral service issues might involve a rude housekeeper or poor communication style of the front desk (Stringham & Gerdes, 2010). Sparks and Browning (2010) have reported the majority of hotel reviews analyzed in their study are either about core functions of the hotel (dirty rooms, malfunctioning equipment) or customer service (unpleasant interactions with staff). Thus, it is more efficient to investigate hotel attribute effects within the core and peripheral category context.

In order to determine the different effect of OCRs on core and peripheral attributes associated with perceived risk levels, we need to examine their effects on customer's overall perceived risk associated with online leisure hotel booking, respectively. Thus,

Hypothesis 2: Consumers' level of perceived risk associated with online leisure hotel booking depends on the combination of valence and content of online customer reviews read. The order from lowest to highest level is: positive reviews on both core and peripheral attributes (C+/P+), positive reviews on core attributes and negative reviews on peripheral attributes (C+/P-), negative reviews on peripheral attributes and positive reviews on core attributes (C-/P+), and negative reviews on both core and peripheral attributes (C-/P-).

Besides the individual effect from OCRs on core or peripheral attributes, it is also desirable to understand the relative importance of the two types of contents. Previous studies have shown evidence that travelers are concerned about both core and peripheral attributes, when the survey asked them to rate their preference on each attribute individually (Yang, Jou & Cheng, 2011; Chan & Lam, 2013). However, Zhang and Mao (2012) have shown that core attributes such as room condition and location rank top 2 most important in terms of customer opinions in all hotels, whereas peripheral attributes such as service and friendliness only rank 7th and 10th. The drastic differences between core and peripheral attributes imply that OCRs on these two attributes impact overall perceived risk associated with online shopping differently. Presumably, OCRs on core attributes could have more significant influence on overall perceived risk associated with online shopping. Moreover, the nature of online booking can make the effects of the two types of OCR contents more distinguishable, in that consumers care about core attributes more than peripheral attributes in the pre-purchase stage (Zhang & Mao, 2012). Nonetheless, core attributes could have more severe consequences when they do go wrong.

In addition, the core attributes of a hotel provide the basis for consumers to evaluate the peripheral attributes. Specifically, the core attributes consist of physical deliverables such as room, hotel location, transportation, and so on. The peripheral attributes are built on top of these physical deliverables, for instance, room service, courtesy of staff, friendliness of the shuttle driver. Good peripheral attributes can add to the pleasant experience of the customer if the core attributes meet the overall expectation. However, if the core attributes themselves are disappointing, such as a smelly room or a hotel that is

close to a major construction site, the good peripheral attributes can hardly turn around the customer's bad impression (Yang, Jou & Cheng, 2011). Thus, the nature of core and peripheral attributes can shed some light on the pre-purchase decision making process because consumers are reading different online reviews that involve both core and peripheral attributes. Hereby,

Research Hypothesis 3: The effect of peripheral OCR is contingent on core OCR. The effect of positive peripheral OCR on the level of perceived risk associated with online leisure hotel booking is more significant when core OCR is positive.

Moreover, it is desirable to understand the effect of OCRs on each dimension of perceived risk associated with online leisure hotel booking. Intuitively, the effect of comments on core attributes and peripheral attributes will impact each dimension differently. Thus, the fourth hypothesis is given as:

Hypothesis 4: The magnitudes of OCR effect are different for each dimension of perceived risk in online leisure hotel booking.

CHAPTER 3. METHODOLOGY

3.1 Introduction

Chapter 3 discusses the methodology for this study. The specific research questions are given in the form of research hypotheses as proposed in Chapter 2. Then, the design of the research instrument is described in detail. The origin and design of measurement scales for overall perceived risk is explained comprehensively in the measurement development section. In the end, the general procedure of implementing the survey is depicted. The research design, sampling procedures and hypothesis testing are reviewed.

3.2 Research Design

Mitchell (1994) has demonstrated that a good way to measure risk perception is to depict a purchasing scenario for the survey due to the fact that the nature of perception measurement is a remarkably task specific phenomenon. Thus, four scenarios were designed for consumers to evaluate the dimensions of perceived risk associated with online leisure hotel booking.

In the survey, past travel experiences, attitudes towards OCRs and demographics were measured before the treatments. The participants were asked to indicate the importance with regard to different dimensions of perceived risk. Next, the participants were provided with the scenario that they were planning a trip for an up-coming vacation.

One out of four online customer review samples was randomly provided. Finally, the perceived risk associated with online leisure hotel booking of the participant was evaluated with a set of measurement questions based on literature (Han & Weaver, 2003; Hsieh et al., 1994; Mitchell, Davies, Moutinho, & Vassos, 1999; Roehl, 1992; Sonmez, 1998; Stone & Gronhaug, 1993; Stone & Mason, 1995; Tsaor et al., 1997; Um & Crompton, 1992) and modified for online hotel booking context.

In sum, the questionnaire was constituted of four parts (See Appendix):

(1) Past experience and pre-treatment perceived importance measurement: past online leisure hotel booking experience were pre-assessed by multiple choice questions; respondents were also asked to indicate their opinions on the level of importance with regard to different dimensions of perceived risk associated with online leisure hotel booking.

(2) A scenario description and one of four online customer review samples.

(3) Operational statements based on literature were used to evaluate the perceived risk associated with online leisure hotel booking after the online customer review scenario treatment.

(4) Demographic questions.

3.2.1 Past Experience and Pre-Treatment Perceived Importance

3.2.1.1 Past Experience

Participants' attitudes towards online customer reviews were measured using multiple choice questions, regarding their online hotel booking frequency (Q1), hotel

type choice (Q2), online review reading frequency (Q3), online review reading time (Q4), valence of online review (Q5), preferred review content (Q6), and frequency of writing online review (Q7) (see Appendix).

The first question was used to evaluate the participants' familiarity with online hotel booking; the variations caused by this variable were considered and eliminated from the final comparison. The second question was used in determining customer's preference about hotel styles. Q3 and Q4 were used to measure participants' reliance on OCRs. Previous research has demonstrated that customers who are more influenced by OCRs tend to be more dependent on them (Gretzel & Yoo, 2008). The results from the two questions were used to address the difference in perceived risk associated with online leisure hotel booking caused by different attitudes towards OCRs. Q5, Q6 and Q7 were designed to assess participants' involvement in generating online customer reviews. The involvement was positively correlated with the reliance on OCRs, so the involvement assessment served as an additional variable to define participants' attitudes towards OCRs (Sparks & Browning, 2011).

3.2.1.2 Pre-Treatment Perceived Importance Measurement

The operational statements used to measure pre-treatment perceived importance were derived from several previous reports (Han & Weaver, 2003; Hsieh et al., 1994; Mitchell, Davies, Moutinho, & Vassos, 1999; Roehl, 1992; Sonmez, 1998; Stone & Gronhaug, 1993; Stone & Mason, 1995; Tsaor et al., 1997; Um & Crompton, 1992). For accurate measurement of the dimensions of perceived importance, one measure statement

for each dimension of perceived importance was applied. Hereby, we identified six dimensions of perceived importance from previous studies, including physical risk, psychological risk, social risk, performance risk, financial risk, and time-loss risk. Respondent were asked to rate their feeling of importance on a five-point Likert scale (1=not important at all to 5=highly important) regarding the six types of perceived importance in online leisure hotel booking for their own trips. The measurements selected from the literature were modified.

The measuring item for the dimension of “Physical Risk” was: “Personal safety and physical well-being during your stay” modified from “Possibility of physical danger, injury or sickness while on vacation” (Roehl, 1988) and “You may experience or witness violence during your holiday” (Mitchell & Vassos, 1997).

The measurement for “Psychological Risk” was: “The level of anxiety caused by staying in this hotel” modified from “The thought of purchasing a personal computer within the next twelve months for use at home makes me feel psychologically uncomfortable” (Stone & Mason, 1995) and “The thought of purchasing a personal computer within the next twelve months for use at home gives me a feeling of unwanted anxiety” (Stone & Mason, 1995).

The measurement for “Social Risk” was: “Other people’s opinion of you if you stay in this hotel” modified from “Possibility that a vacation will affect others’ opinion of me” (Roehl, 1988) and “I want to travel to ____ because that is where everyone goes” (Um & Crompton, 1992).

“Performance Risk” was measured with the statement: “The performance of the hotel in both facility and service” modified from “Possibility of mechanical, equipment

or organizational problems while on vacation” (Roehl, 1988) and “I wasn’t treated badly by the hotel staff” (Um & Crompton, 1992).

The statement for measuring “Financial Risk” was: “The value for the money you spend” modified from “Possibility that the vacation will not provide value for the money spent” (Roehl, 1988) and “My purchasing a personal computer within the next twelve months for use at home would be a bad way to spend my money” (Stone & Mason, 1995).

The operational statements for “Time-loss Risk” was: “The time required for booking or staying in the hotel.” modified from “Possibility that a vacation will take too much time or be a waste of time” (Roehl, 1988).

3.2.2 Scenarios

The participant was asked to imagine that he/she is planning a trip for the up-coming vacation. Each individual participant was randomly assigned to one of the four scenarios. Each scenario was composed of two parts: comments on core attributes (positive or negative) and comments on peripheral attributes (positive or negative). The four sample reviews (treatments) are the combinations of four basic review samples listed as follows, denoted as core positive (C+), core negative (C-), peripheral positive (P+), and peripheral negative (P-):

“Great facility (C+)

In addition to cleanliness, it is centrally located to all the various hotels and attractions on the strip from north to the south. I loved the fitness gym and easy Internet access. Other hotels I stayed in did not have multiple computers in a

separate computer terminal area for privacy, away from the crowd in the lobby. The food at a variety of restaurants was delicious.

“Poor room (C-)

The hotel is located quite far away from attractions on the strip. The fitness gym has limited number of equipment and the Internet access is very unstable. Other hotels I stayed all have multiple computers in a separate computer terminal area for privacy, away from the crowd in the lobby. However, this hotel does not provide free computers or printers. The hotel decoration is outdated and bathroom is really tiny.

“Great service (P+)

Room service was fast (less than 20 minutes, each of 5 times I used it) and the food was very good and always hot. Everyone was very friendly, and compared to other resorts, there seemed to be more wait staff taking drink orders by the pool. The front desk manager was very nice to extend our check-out time to noon.

“Horrible service (P-)

Moreover, room service was slow (More than an hour waiting, each of 5 times I used it). The staff weren't very friendly, and compared to other resorts, there seemed to be fewer wait staff taking drink orders by the pool. The front desk manager was in a very arrogant manner and refused to extend our check-out time to noon.

Therefore, the four samples (treatments) are: C+/P+, C-/P+, C+/P-, and C-/P-. Specifically, cleanliness, location, food and beverage, fitness center and internet service were used to represent core attributes, whereas room service, friendliness and efficiency of the staff were reviewed as peripheral attributes. These specific attributes were used

because they are the most commonly mentioned attributes in online customer reviews (Kim & Han, 2010).

Each participant was randomly provided with one of the four sample reviews and asked to share their feelings about the review by rating a series of operational statements in the next section. Specifically, the operational statements were composed of two categories: (1) respondent's opinion about the probability of negative consequences to occur (PNC); and (2) their judged importance of a negative consequence (INC) given it does occur (Goodwin, 2009).

3.2.3 Measurement of Post-Treatment Perceived Risk

As mentioned in the previous section, two sets of operational statements were used to measure respondents' post-treatment perceived risk associated with online booking. Specifically, six PNC statements were used to measure the respondents' opinion about the probability of negative consequences to occur, and six INC statements were used to measure their judged importance of a negative consequence given it does occur. The PNC statements were given in the form of "What do you think is the probability that...", whereas the INC statements were given in the form of "How bothered or upset would you be if the following events happen to you?" The literature sources for the PNC and INC statements were given as follows:

The measuring items for the dimension of "Physical Risk" were: for PNC, "What do you think is the probability that you will run into problems regarding your safety during staying in this hotel?" modified from "Possibility of physical danger, injury or sickness while on vacation" (Roehl, 1988); and for INC, "You had health or safety

problems because of staying in this hotel.”, which was essentially the same as the previous statement “Personal safety and physical well-being during your stay”. The reason to rephrase the statement and ask it again was because we would like to measure the change of INCs before and after the OCR treatment.

The measurement for “Psychological Risk” were: for PNC, “What do you think is the probability that staying in this hotel will hurt your self-image?” modified from “Possibility that a vacation will not reflect my personality or self-image” (Roehl, 1988); and for INC, “Staying in this hotel hurt your self-image.”

The measurement for “Social Risk” were: for PNC, “What do you think is the probability that staying in this hotel will negatively affect others’ opinion of you?” modified from “Possibility that a vacation will affect others’ opinion of me” (Roehl, 1988); and for INC, “Your friends laughed at you because you made the wrong decision booking this hotel.”

The two items for measuring “Performance Risk” were: (1) “What do you think is the probability that there will be problems in the hotel room facilities or service?” modified from “Possibility of mechanical, equipment or organizational problems while on vacation” (Roehl, 1988); and for INC, “The hotel facilities or service staff did not perform well.”

The items for measuring “Financial Risk” were: for PNC, “What do you think is the probability that staying in this hotel will be a waste of your money?” modified from “Possibility that the vacation will not provide value for the money spent” (Roehl, 1988); and for INC, “The experience of staying in this hotel was not worth the price.”

The two operational statements for “Time-loss Risk” were: for PNC, “What do you think is the probability that booking this hotel will require too much planning time?” modified from “Possibility that a vacation will take too much time or be a waste of time” (Roehl, 1988); and INC, “Booking or staying in this hotel was a waste of time.”

PNC was measured against a nine-point Likert scale (1= “I feel that there is absolutely no chance at all” to 9= “I feel that the situation will absolutely occur”), and likewise, INC was measured in the same manner by indicating their opinions to the question “How bothered or upset would you be if the following events happen to you?” in which 1= “I would not be bothered or upset at all” and 9= “I would be extremely bothered and upset”. The resulting PNC and INC values were used to calculate the overall perceived risk (OPR) using the following equation:

$$OPR_t = \sum_{i=1}^6 [(PNC)_{i,t} \times (INC)_{i,t}]$$

Where “i” is an index representing the negative consequences from the six dimensions, and “t” represents that the PNC and INC are measured after the OCR treatment.

3.2.4 Demographic Questions

Age, gender, marital status, education, employment status and annual household income were collected as demographic information at the end of the survey (see Appendix).

3.3 Sampling Procedures

The data was collected via web-based survey not only due to its ease of use, but also because it surveys online consumers and suits the objective of the study. The survey was created on www.qualtrics.com, and distributed to the researcher's network of friends by using snowball sampling method.

Specifically, the link of this survey was distributed to 20 initial respondents, who were then asked to further distribute the survey link to secondary respondents. The survey was distributed in a similar manner as to a rolling a snowball. Each respondent may also open possibilities for an expanding web of contact and inquiry (Faugier & Sargeant, 1997). Major network websites, i.e. facebook, weibo, twitter, were utilized to expand the scope of recruiting possible respondents. Specifically, survey links were distributed to friends and colleagues via message system in facebook, weibo and twitter.

To perform comparison between hotel attributes, four types of OCRs should be equally and randomly distributed. According to Hair et al. (1998), the sample size should be larger than 100 and have a ten-to-one ratio of observations to variables to satisfy the need for factor analysis. Thus, a sample size of 200 was proposed for this study. Therefore, data collection was terminated after 200 survey responses had been obtained. Among the 200 responses, 18 of them were discarded because of the incompleteness of the questionnaires.

This sampling method uses a small pool of initial informants to nominate, through their social networks, other participants who meet the eligibility criteria and could potentially contribute to the study. There are several reasons we choose to use this method: (1) it is cost efficient. Snowball sampling relies on referrals and by word of

mouth. The majority of the cost and effort goes into the preliminary rounds of the study, contacting people and spreading the word of the main goals of the study.(2) it recruits respondents in a voluntary manner, so that the validity of the responses is high. The respondents recruited are mostly acquaintances or acquaintances referrals. They tend to be more responsible in answering the survey questions than the randomly selected population. This method, however, bears several disadvantages. Firstly, it has community bias. The first group of participants has strong impact on the sample because the method is heavily relying on the individual's ability to network and find the next appropriate respondent. Secondly, snowball sampling is not a random process and can be biased. However, social systems are not necessarily random, either; suggesting snowball sampling is inevitable in social systems. Additional statistical analyses were performed to check and address potential biases of snowball sampling and will be discussed further in Chapter 4.

3.4 Hypothesis Testing Procedures

The SAS statistical program was utilized for data process and analysis. Several statistical approaches were applied; including descriptive statistics, paired t-test, analysis of covariance (ANCOVA), linear contrasts, and least squares means multiple comparisons.

3.4.1 Hypothesis Testing

To test the four proposed research hypotheses with the dataset regarding perceived risk in online leisure hotel booking, the statistical methods summarized above were used in this section.

Research Hypothesis 1: The performance risk is the most important dimension of perceived risk associated with online leisure hotel booking.

To evaluate the importance of dimensions of perceived risk in online leisure hotel booking, paired t-test was used.

Research Hypothesis 2: Consumers' level of perceived risk associated with online leisure hotel booking depends on the combination of valence and content of online customer reviews read. The order from lowest to highest level is: positive reviews on both core and peripheral attributes (C+/P+), positive reviews on core attributes and negative reviews on peripheral attributes (C+/P-), negative reviews on peripheral attributes and positive reviews on core attributes (C-/P+), and negative reviews on both core and peripheral attributes (C-/P-).

Hypothesis 2 was tested by linear contrasts of post-treatment risk perception in each scenario with the grand mean (the mean post-treatment risk perception of all responses). The null hypothesis (H2₀) and alternative hypothesis (H2_a) can be expressed as:

$$H2_0: \text{Mean (C+/P+)} = \text{Mean (C+/P-)} = \text{Mean (C-/P+)} = \text{Mean (C-/P-)}$$

$$H2_a: \text{Mean (C+/P+)} > \text{Mean (C+/P-)} > \text{Mean (C-/P+)} > \text{Mean (C-/P-)}$$

Research Hypothesis 3: The effect of peripheral OCR is contingent on core OCR. The effect of positive peripheral OCR on the level of perceived risk associated with online leisure hotel booking is more significant when core OCR is positive.

Hypothesis 3 was tested by linear contrasts of the net effects of OCRs about peripheral attributes in both positive and negative core scenarios. The null hypothesis (H3₀) and alternative hypothesis (H3_a) can be expressed as:

$$H3_0: \text{Mean (C+/P+)} - \text{Mean (C+/P-)} = \text{Mean (C-/P+)} - \text{Mean (C-/P-)}$$

$$H3_a: \text{Mean (C+/P+)} - \text{Mean (C+/P-)} > \text{Mean (C-/P+)} - \text{Mean (C-/P-)}$$

Research Hypothesis 4: The magnitudes of OCR effect are different for each dimension of perceived risk in online leisure hotel booking.

ANCOVA and multiple comparisons were used to understand the specific effect of OCRs on each dimension of perceived risk associated with online leisure hotel booking. ANCOVA F-test was used instead of ANOVA because certain covariates (annual household income) are significant but are not in the scope of this study. Variations need to be quantified within each designed block (i.e. certain annual household income group) instead of between the blocks. Specifically, ANCOVA F-test was used to evaluate the significance of online customer reviews on each perceived risk dimension. Then, multiple comparisons between the least squares means of risk perception in a certain dimension with respect to different OCRs were performed to quantify the actual effect of OCRs on each dimension of perceived risk associated with online leisure hotel booking.

3.4.2 ANCOVA

Covariance is a measure of how much two variables change together and how strong the relationship is between them. Analysis of covariance (ANCOVA) is general linear model which blends analysis of variance (ANOVA) and regression. ANCOVA evaluates whether population means of a dependent variable (DV) are equal across levels of a categorical independent variable (IV), while statistically controlling for the effects of other continuous variables that are not of primary interest, known as covariates (CV). Therefore, when performing ANCOVA, we are adjusting the DV means to what they would be if all groups were equal on the CV. In the study, the previous experience, attitudes towards OCRs, demographics are considered to be CVs, hotel attributes and hotel preferences are considered to be IVs, whereas perceived risk associated with online leisure hotel booking is the DV.

3.4.3 Least Square Means Multiple Comparison

The multiple comparison procedure is a type of location test that is used when comparing several sets of measurements to assess whether their population means differ. A multiple comparison test uses information about the sample that is not present in an ordinary unpaired testing situation, either to increase the statistical power, or to reduce the effects of confounders. Specifically, Tukey-Kramer adjustment was used to allow multiple comparisons.

3.4.4 Linear Contrasts

Linear contrast is a linear combination of two or more factor level means whose coefficients add up to zero. The contrasts used in this study are generated by “Contrast” statement under “LSMEANS” statement in SAS.

CHAPTER 4. RESULTS

4.1 Introduction

This chapter provides the process and the results of the data analysis. This study conducted scale purification to validate the underlying dimensions of perceived risk associated with online leisure hotel booking and to obtain a reliable instrument for the final data interpretation.

4.1.1 Survey Method

The survey was distributed to 200 individuals via www.qualtrics.com system by using snowball sampling method.

4.1.2 Sample

A total of 200 responses were returned with a complete rate of 91%. In the process of validating the data, 18 responses were removed due to incompleteness. The majority of the incomplete surveys came from the initial assessment of the questionnaire by the researchers. The researchers just went through the survey to check its work flow without answering the survey questions. This activity was recorded by the system and thus should be deleted from the final result. The rest incomplete questions presumably came from

Internet or respondent issues. Therefore, 182 surveys were used in the final data analysis with a valid complete rate of 91%.

4.1.3 Profile of the Respondents

Respondent demographic characteristic information such as gender, age, education level, marital status, employment status, and annual household income was obtained to understand the descriptive profile of respondents (Table 4.1). Each characteristic of the respondents is discussed in the following sections.

Gender: Respondents were asked to indicate if they were male or female. 100% response was obtained on this question, showing that 100 (55%) respondents are male whereas 82 (45%) respondents are female.

Age: Respondents were asked to provide their age information by choosing one of the age intervals. The majority of the respondents fall into the 18-24 (134, 74%) and 25-34 (48, 26%) age interval since they are mostly college or graduate students. This could be a potential restriction of this research since it significantly emphasizes on the opinion of people within 18 to 34 age interval.

Education level: The respondents were asked to choose among four levels of education. 20 respondents (11%) had high school diploma, and 87 respondents (48%) had college degrees, whereas 75 respondents (41%) have graduate or professional degrees.

Marital Status: The vast majority of 137 respondents (75%) specified that they were single, while 45 (25%) were married.

Employment status: Nearly half of the respondents were students (86, 47%). 40 (22%) were unemployed, further investigation of this revealed that these respondents

were mostly recent graduates who do not have a job yet. 28 individuals (15%) were on part-time job, 22 (12%) had full-time job, while there were 6 respondents (3%) reporting as business owners.

Annual household income: Since the majority of the respondents were students or recent graduates, most of the respondents (87%) had yearly income level less than \$25,000. Only 13% individuals reported their annual income higher than \$25,000. There was only one individual who had annual household income more than \$100,000.

The “Mean Perceived Importance” and “p-value from F-test” columns were obtained by ANOVA test of each individual variable. The “Mean Perceived Importance” describes the influence of demographics on the pre-treatment overall importance. The p-values indicate the significance of the each individual independent variable in predicting the overall perceived importance associated with online leisure hotel booking. Only “Annual household income” was observed to be a statistically significant predictor for pre-treatment overall perceived importance associated with online leisure hotel booking, whereas the mean pre-treatment overall perceived importance associated with online leisure hotel booking is indistinguishable for other independent variables. The general trend for people with annual household income lower than \$50,000 was that pre-treatment overall perceived importance associated with online leisure hotel booking decrease with increasing household income. However, with higher household income, this trend is reversed. Pre-treatment overall perceived importance associated with online leisure hotel booking increase with increasing household income. Two possibilities can lead to this change in high-income population. One is that the hotel preference for high-income population differs from the relatively low-income group. The high-income

individuals are more inclined to stay in high-profile hotels such as luxury hotels and upscale hotels, whereas the low-income individuals prefer economy hotels. This hypothesis was rejected by testing the correlations between hotel preference and annual household income ($p=0.6937$). The other explanation is that there was limited number of data points in the sections “\$50,000 to \$74,999”, “\$75,000 to \$99,999 and “\$100,000 or more” (i.e., there is only one data point in the section ““\$100,000 or more”), so that the means in these sections were not representative. Although “LSMEANS” statement was used to adjust for unbalanced cell sizes (different data points in sections), the significance may still be false positive because of the unusually unbalanced cell sizes. Nevertheless, “annual household income” was considered as covariate in the following ANCOVA test, so that the contribution from the covariate was accounted.

Table 4.1 Profile of the Respondents

		Freq.	Percent	Mean Perceived Importance	p-value from F-test
Gender (n=182)	Male	100	55%	2.048	0.4077
	Female	82	45%	2.018	
Age (n=182)	Under 18	0	0%	-/-	0.3714
	18 to 24	134	74%	2.028	
	25 to 34	48	26%	2.038	
	35 to 44	0	0%	-/-	
	45 to 54	0	0%	-/-	
	55 to 64	0	0%	-/-	
	65 and over	0	0%	-/-	
Education level (n=182)	< High school	0	0%	-/-	0.8220
	High School	20	11%	2.014	
	College/Univ.	87	48%	2.027	
	Graduate School	75	41%	2.057	
Marital status (n=182)	Single	137	75%	2.048	0.3018
	Married	45	25%	2.018	

Table 4.1 Con'd

		Freq.	Percent	Mean Perceived Importance	p-value from F- test
Employment status (n=182)	Student	86	47%	1.972	0.1448
	Unemployed	40	22%	1.997	
	Part-time job	28	15%	2.009	
	Full-time job	22	12%	2.149	
	Business owner	6	3%	2.038	
	Other	0	0%	-/-	
Annual household income (n=182)	\$14,999 or less	77	42%	2.155	0.0197
	\$15,000 to \$24,999	77	42%	2.169	
	\$25,000 to \$49,999	5	3%	1.701	
	\$50,000 to \$74,999	10	5%	1.910	
	\$75,000 to \$99,999	12	7%	1.996	
	\$100,000 or more	1	1%	2.266	

Past experiences: Respondents were asked a series of questions to determine their previous experiences with online leisure hotel booking. The data was collected and used to eliminate the past experience effect on the analysis of OCR effect on risk perceptions. Specifically, respondents' past experiences on their online booking frequencies, hotel preferences, frequencies of reading online reviews, time spent reading online reviews, attention to positive/negative reviews, hotel attributes they care about, and frequencies of writing online reviews. Table 4.2 suggests that respondents' past online hotel booking frequencies and hotel preferences were evenly distributed among all categories. For instance, approximately a quarter of the respondents made online booking for almost every trip, a little bit less than a quarter booking hotels online for every other trip, and the other two quarters book hotels for every 3~10 trips or 10+ trips, respectively. However, the majority of them (84%) read online reviews for most of the trips before they make the final decision, indicating the significant influence of OCRs on people's decision

processes. The time they spent on reading online reviews varies, largely due to personal habit or type of travel. Respondents paid equal attention to both positive and negative reviews, and more people cared about the hotel price, facility and location more than the service. Surprisingly, although most respondents were willing to benefit from OCRs generated by others, the majority of them did not generate such information themselves (92% of the respondents either don't write online reviews at all or only write once or twice). This is interesting because it is likely that the particular group of people who are willing to write online reviews have certain attributes in common that will possibly alter the justice of their reviews.

ANOVA test of each past experience entries resulted in the significance level of each individual past experience. Table 4.2 shows that "Online booking frequencies" and "Time spent reading online reviews" were the two significant predictors for pre-treatment perceived importance associated with online leisure hotel booking. The former finding was in line with previous observations that "frequent online shoppers adopt a lower level of perceived risk" (Chu & Li, 2008). The difference in pre-treatment overall risk perception associated with "Time spent reading online reviews" was presumably due to its effect on perceived time-loss risk dimension, which will be discussed in the next section.

Table 4.2 Descriptive Information Regarding Past Experiences

Past Experiences		Response	Percent	Mean Perceived Importance	p-value from F-test
Online booking frequencies	Almost every trip	47	26%	1.989	0.0377
	Every other trip	36	20%	2.042	
	Every 3~10 trips	49	27%	2.099	
	Every 10+ trips	50	27%	2.002	
Hotel preferences	Luxury hotels	56	31%	2.029	0.1836
	Upscale hotels	46	25%	2.044	
	Economy hotels	35	19%	2.047	
	Motels	45	25%	2.012	
Frequencies of reading online reviews	Every hotel	77	42%	1.998	0.2351
	Every other hotel	77	42%	1.999	
	Every 3-10 hotels	28	15%	2.102	
	Every 10+ hotels	0	0%	-/-	
Time spent reading online reviews	5 min	36	20%	1.944	<.0001
	6~10 min	29	16%	1.926	
	11~20 min	43	24%	2.080	
	21~30 min	39	21%	2.096	
	Over 30 min	35	19%	2.119	
Attention to positive/negative reviews	Positive reviews	102	56%	2.019	0.6662
	Negative reviews	80	44%	2.047	
Frequencies of writing online reviews	Never	86	47%	2.044	0.3140
	For one or two trips	81	45%	2.034	
	For most trips	15	8%	2.020	
	For every trip	0	0%	-/-	

ANCOVA: As discussed in Chapter 3, the data was collected under four different online customer review scenarios, namely positive core and peripheral attributes (C+/P+), negative core attributes and positive peripheral attributes (C-/P+), positive core attributes and negative peripheral attributes (C+/P-), and negative core and peripheral attributes (C-/P-). Specifically, two sets of evaluation questions were given to respondents asking their perception on the probability of a negative consequence occurring (PNC) as well as their

judged importance of a negative consequence (INC) given it does occur (Goodwin, 2009).

The overall perceived (OPR) risk after OCR treatment was computed using:

$$OPR_t = \sum_{i=1}^6 [(PNC)_{i,t} \times (INC)_{i,t}]$$

Where “i” is an index representing the negative consequences from the six dimensions of perceived risk associated with online leisure hotel booking, and “t” represents that the PNC and INC are measured after the OCR treatment. The resulting PNC and INC values were used to calculate the OPR.

Given that the “risk perception” was affected by a number of variables, including respondent demographics, previous experiences, preferred hotel types, etc., we need to consider these covariates in the statistical model although they are not of primary interest. Table 4.3 shows the ANCOVA using Type III sum of squares (SS) of each independent variable (predictor). Type III SS shows the effect of each predictor in the model, controlling for all other effects. Only respondents preference for hotel styles (Hotel preference) and OCR treatment scenarios (Scenario) show statistical significance ($p < 0.0001$) in predicting the post-treatment overall risk perception associated with online leisure hotel booking.

Table 4.3 ANCOVA Table of Independent Variables with Risk Perception as Dependent Variable

Independent Variable	p-value from F-test
Gender	0.9056
Trip Frequency	0.1994
Review Reading Freq	0.5986
Hotel preference	<.0001
Review Reading Time	0.9693
Positive or Negative	0.3068
Online review writing	0.1587
Age	0.5378
Education	0.8220
Marital	0.0827
Employment	0.2880
Income	0.0875
Scenario	<.0001

4.2 Hypothesis Testing

The hypotheses were tested in this section of the chapter. Firstly, the descriptive information of variables used in data analysis was presented: the data set for perceived importance, demographic information, experiences with online customer reviews on leisure hotel booking. Secondly, the effect of the given OCRs was evaluated with respect to its influence on people's risk perceptions.

4.2.1 Testing Research Hypothesis 1

Research Hypothesis 1: The performance risk is the most important dimension of perceived risk associated with online leisure hotel booking.

Respondents were asked to indicate their opinions on the level of importance with regard to different dimensions of perceived risk associated with online leisure hotel booking. The responses were input as a five-point Likert scale (1=not important at all to

5=very important). Table 4.4 shows the paired t-test results of least squares means of pre-treatment perceived importance between different perceived risk dimensions. Among the 6 items, “personal safety and physical well-being during your stay” was considered to be the most important factor when people are considering booking leisure hotels online. From the paired t-test between different dimensions, we observed that pre-treatment perceived importance in physical, social and performance risk dimensions were not distinguishable (p-values are 0.6457, 0.5148 and 1.0000, respectively). Perceived importance in financial and psychological risk dimensions proved to be less significant, given by the p-value < 0.0001 from t-test between perceived importance in physical and financial risk dimensions. Table 4.4 also describes the 95% confidence interval for the comparison of perceived importance measurement in each dimension. Performance risk, physical risk and social risk ranked the highest on the list without significant distinction between the three. Financial risk was the second highest, whereas psychological risk and time-loss risk were the least concerned. Thus, Hypothesis 1 was not supported by the data in that performance risk is one of the most important dimensions in determining people’s overall perceived risk in online leisure hotel booking.

Table 4.4 Paired t-test of Least Squares Means of Pre-Treatment Perceived Importance between Different Perceived Risk Dimensions

Dimensions (i)	Dimensions (j)	Mean (i)- (j)	95% C. I.	p-value
Physical	Social	0.170330	-0.148, 0.488	0.6457
Physical	Performance	0.192308	-0.126, 0.510	0.5148
Physical	Financial	0.560440	0.242, 0.878	<.0001
Social	Performance	0.021978	-0.296, 0.340	1.0000
Social	Financial	0.390110	0.072, 0.708	0.0064
Performance	Financial	0.368132	0.050, 0.686	0.0126
Financial	Psychological	0.219780	-0.098, 0.538	0.3589
Financial	Time-Loss	0.428571	0.110, 0.747	0.0018
Psychological	Time-Loss	0.208791	-0.109, 0.527	0.4189

4.2.2 Testing Research Hypothesis 2

Research Hypothesis 2: Consumers' level of perceived risk associated with online leisure hotel booking depends on the combination of valence and content of online customer reviews read. The order from lowest to highest level is: positive reviews on both core and peripheral attributes (C+/P+), positive reviews on core attributes and negative reviews on peripheral attributes (C+/P-), negative reviews on peripheral attributes and positive reviews on core attributes (C-/P+), and negative reviews on both core and peripheral attributes (C-/P-).

The ANCOVA showed that the "scenario" was an important predictor for post-treatment overall risk perception associated with online leisure hotel booking. Hypothesis 2 was tested by comparing the means of post-treatment overall risk perception in each scenario and the grand mean. Hypothesis 2 was supported if $\text{Mean (C+/P+)} > \text{Mean (C+/P-)} > \text{Mean (C-/P+)} > \text{Mean (C-/P-)}$. The null hypothesis (H2₀) and alternative hypothesis (H2_a) can be expressed as:

$$H_{20}: \text{Mean (C+/P+)} = \text{Mean (C+/P-)} = \text{Mean (C-/P+)} = \text{Mean (C-/P-)}$$

H2a: Mean (C+/P+) > Mean (C+/P-) > Mean (C-/P+) > Mean (C-/P-)

Linear contrasts were performed using “contrast” and “estimate” statement in the SAS programming. According to Table 4.5, the contrasts between each scenario and the grand mean are -0.370, -0.153, 0.046 and 0.477, respectively. The results agreed with previous studies that consumers who read positive OCRs had lower level of their overall risk perceptions (-0.370 denoted lower level of perceived risk associated with online leisure hotel booking), whereas consumers who read negative OCRs had higher level of their overall perceived risk (0.477 represented higher level of perceived risk associated with online leisure hotel booking). The contrasts between the scenarios are shown in Table 4.6, which suggested that Mean (C+/P+) > Mean (C+/P-) > Mean (C-/P+) > Mean (C-/P-), with 95% confidence level. Therefore, Hypothesis 2 was supported.

Table 4.5 Linear Contrasts: Risk Perception in Each Scenario vs. Grand Mean

Scenario	Contrast	95% C. I.	Pr > t
C+/P+ vs. Grand Mean	-0.370	-0.420, -0.320	<.0001
C+/P- vs. Grand Mean	-0.153	-0.203, -0.103	<.0001
C-/P+ vs. Grand Mean	0.046	-0.004, 0.096	0.0695
C-/P- vs. Grand Mean	0.477	0.427, 0.527	<.0001

Table 4.6 Linear Contrasts: Risk Perception in Each Scenario

Scenario	Contrast	95% C. I.	Pr > t
C+/P- vs. C+/P+	0.416	0.335, 0.497	<.0001
C-/P+ vs. C+/P-	0.199	0.118, 0.281	<.0001
C-/P- vs. C-/P+	0.630	0.548, 0.712	<.0001

4.2.3 Testing Research Hypothesis 3

Research Hypothesis 3: The effect of peripheral OCR is contingent on core OCR. The effect of positive peripheral OCR on the level of perceived risk associated with online leisure hotel booking is more significant when core OCR is positive.

Hypothesis 3 was tested by comparing the net effects of OCRs about peripheral attributes in both positive and negative core scenarios. Before direct contrast between the differences in effect of peripheral attributes, the net effect of peripheral attributes was examined in both circumstances, i.e. core attributes were positively reviewed vs. core attributes were negatively reviewed. Linear contrasts suggested that $\text{Mean (C-/P+)} - \text{Mean (C+/P+)} > 0$ (C1 in Table 4.8) and $\text{Mean (C-/P-)} - \text{Mean (C-/P+)} > 0$ (C2 in table 4.7). This result indicated that comments on peripheral attributes had substantial influence on customers' overall perceived risk regardless of the valence of comments on core attributes. Furthermore, the contrast of the effects of OCRs on peripheral attributes in both C+ and C- scenarios were also performed (Table 4.7). The null hypothesis (H3₀) and alternative hypothesis (H3_a) can be expressed as:

$$H3_0: \text{Mean (C+/P-)} - \text{Mean (C+/P+)} = \text{Mean (C-/P-)} - \text{Mean (C-/P+)}$$

$$H3_a: \text{Mean (C+/P-)} - \text{Mean (C+/P+)} > \text{Mean (C-/P-)} - \text{Mean (C-/P+)}$$

Similar to testing Hypothesis 2, contrasts between groups were performed to obtain the net effect of the peripheral attribute. H3₀ and H3_a are rearranged as:

$$H3_0: \text{Mean (C+/P-)} + \text{Mean (C-/P+)} = \text{Mean (C-/P-)} + \text{Mean (C+/P+)}$$

$$H3_a: \text{Mean (C+/P-)} + \text{Mean (C-/P+)} > \text{Mean (C-/P-)} + \text{Mean (C+/P+)}$$

Table 4.7 shows the contrast result for H3₀, where C3 is the contrast between $\text{Mean (C+/P-)} + \text{Mean (C-/P+)}$ and $\text{Mean (C-/P-)} + \text{Mean (C+/P+)}$. The fact that p-value <

0.0001 for the t-test rejects the null hypothesis and $C3=0.163$ suggested that the alternative hypothesis was valid. Therefore, Hypothesis 3 was supported.

Table 4.7 Contrast between Different Groups of Scenarios

Contrast	Estimate	Standard Error	t Value	Pr > t
C1	0.494	0.03058791	16.16	<.0001
C2	0.169	0.02947075	5.73	<.0001
C3	0.163	0.02077638	7.83	<.0001

Moderating Effect of Hotel Preference Associated with Hypothesis 3

Hypothesis 3 described the fundamental relationship between core and peripheral attribute comments, and the result supported that the effect of peripheral OCR is contingent on core OCR in terms of perceived risk associated with online leisure hotel booking. However, it is still interesting to look for other correlations that have impacts on such relationship, i.e. hotel preference. Table 4.8 is a summary of ANOVA F-test on the interactions between each individual pair of independent variables. The interaction between “Hotel preference” and “Scenario” was the only significant interaction given all other independent variables. Further exploration of this interaction was needed to generate useful insight for the managerial team for different hotel preferences.

“Slice” statement was used to generate least squares means (LS-Means) of level of post-treatment perceived risk associated with online leisure hotel booking in each OCR scenario, each hotel preference. Exhibit 4.1 describes the LS-Means of level of post-treatment overall risk for each individual scenario*hotel preference combination. Qualitatively, customers’ who read negative OCRs have higher level of post-treatment overall risk perception with improved hotel profile (purple dot in Exhibit 4.1). The level

of risk perception after reading positive OCRs stays the same for all hotel preferences (blue dot in Exhibit 4.1). The grey dotted line indicates the grand mean of all post-treatment overall risk perception. Therefore, completely negative OCRs (C-/P-) have a greater impact on upper scale hotel consumers, indicated by the vertical difference between the purple dots and the grey dotted line. Consumers who read completely positive OCRs (C+/P+) have the lowest level of their post-treatment overall perceived risk in all hotel preferences.

Table 4.8 ANOVA Test of Interactions with Risk Perception as Dependent Variable

Interaction	p-value from F-test
Hotel_Preference*Scenario	<0.0001
Gender*Scenario	0.5939
Trip_Freq*Scenario	0.6695
Read_Freq*Scenario	0.3355
Read_Time*Scenario	0.4154
P_or_N*Scenario	0.2570
Write_Freq*Scenario	0.8958
Age*Scenario	0.6866
Education*Scenario	0.5508
Marital*Scenario	0.2354
Employment*Scenario	0.7746
Income*Scenario	0.5322

The comparison between the partially positive (C+/P- or C-/P+) across different hotel preferences provides more insights for the managerial team. For consumers who prefer luxury hotels, the positive comments on core attributes is counter balanced by the negative comments on peripheral attributes, resulting in no difference in levels of overall risk perception (red dot in the luxury column). For the other three hotel preferences, OCRs on core attributes provide more effect on decrease the level of perceived risk than

the level of perceived risk raise caused by negative peripheral comments, leading to lower level of overall perceived risk in the C+/P- scenario. Likewise, the negative comment on core attribute significantly raises the level of overall risk perception of consumers who prefer luxury hotels, whereas, for consumers who prefer upscale and economy hotel, the level of perceived risk raise is statistically insignificant ($p= 0.9877$ and 1.0000 , respectively).

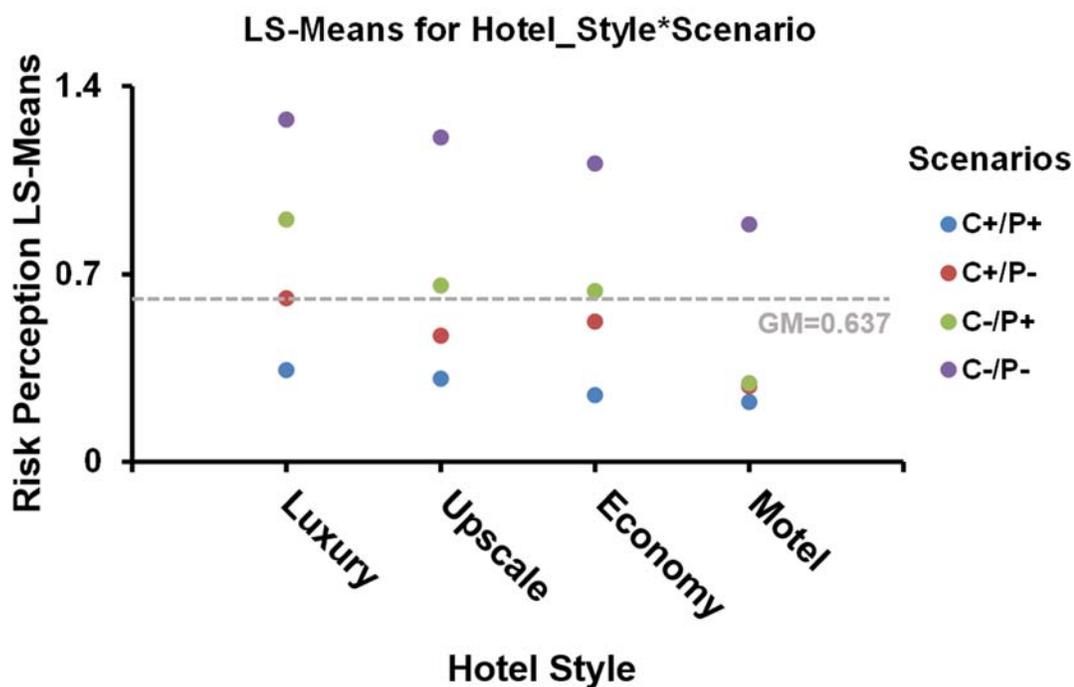


Exhibit 4.1 Levels of Post-treatment overall risk perception LS-Mean with respect to hotel preference and OCR scenario treatment. The grey dotted line indicates the grand mean of levels of post-treatment overall risk perception.

Besides horizontal comparison discussed above, the vertical comparison in each hotel preference was also performed. For consumers who prefer luxury hotels, the effect from each scenario treatment is distinct (Table 4.9). The level of risk perception from C+/P- treatment is significantly lower than that from C-/P+ treatment, suggesting that

both core and peripheral attributes are important for consumers who prefer luxury hotels. Moreover, the peripheral attribute is considered more as a necessary component for luxury hotels because the negative OCR on peripheral attributes results in the most significant increase in level of perceived risk associated with online leisure hotel booking. In the case of upscale hotels, the effect of peripheral attribute comment is insignificant when the core attribute comment is positive. It becomes significant when the OCR on core is negative. As for consumers who prefer economy hotels, similar effect was observed for both core and peripheral OCRs as compared to upscale hotels. The OCR effect on consumers who prefer motels is significantly different from the other hotel preferences. The partially positive and completely positive OCRs can lower the level of the post-treatment overall risk perception to the similar position, whereas completely negative OCRs raise the level of overall perceived risk associated with online leisure hotel booking.

4.2.4 Testing Research Hypothesis 4

Research Hypothesis 4: The magnitudes of OCR effect are different for each dimension of perceived risk in online leisure hotel booking.

In order to understand the effects of OCRs about core and peripheral attributes on each individual dimension of perceived risk associated with online leisure hotel booking, ANCOVA model was used with post-treatment overall risk perception in each dimension as dependent variable. Table 4.10-4.15 describes the ANCOVA results with financial risk, physical risk, psychological risk, performance risk, time-loss risk and social risk as dependent variable, respectively. For financial risk, physical risk, performance risk and

social risk, hotel preference and scenario were the two statistically significant predictors. For physical risk and psychological risk, employment status and annual household income were proved to be significant predictors. Hotel preference did not show statistical significance in predicting psychological risk. Time-loss risk was the only dependent variable for which scenario was not a significant predictor. However, review reading time showed statistical significance in predicting the time-loss risk.

Table 4.9 LS-Means Contrasts of levels of Post-treatment Overall Risk Perception with respect to Scenarios in Each Hotel preference

Hotel preference	Scenario	Contrast	95% C. I.	p-value
Luxury	C+/P+ vs. C+/P-	-0.270	-0.448, -0.092	<0.0001
	C+/P- vs. C-/P+	-0.293	-0.446, -0.141	<0.0001
	C-/P+ vs. C-/P-	-0.372	-0.535, -0.208	<0.0001
Upscale	C+/P+ vs. C+/P-	-0.164	-0.343, 0.015	0.1123
	C+/P- vs. C-/P+	-0.187	-0.381, 0.007	0.0736
	C-/P+ vs. C-/P-	-0.551	-0.750, -0.352	<0.0001
Economy	C+/P+ vs. C+/P-	-0.277	-0.545, -0.010	0.0335
	C+/P- vs. C-/P+	-0.114	-0.373, 0.145	0.9773
	C-/P+ vs. C-/P-	-0.474	-0.675, -0.273	<0.0001
Motel	C+/P+ vs. C+/P-	-0.059	-0.232, 0.114	0.9982
	C+/P- vs. C-/P+	-0.011	-0.207, 0.184	1.0000
	C-/P+ vs. C-/P-	-0.594	-0.794, -0.393	<0.0001

Table 4.10 ANCOVA of Independent Variables with Financial Risk as Dependent Variable

Independent Variable	p-value from F-test
Gender	0.1163
Trip Frequency	0.1946
Review reading freq	0.6131
Hotel preference	<.0001
Review reading time	0.5651
P or N	0.5389
Online review writing	0.6801
Age	0.9007
Education	0.5437
Marital	0.7232
Employment	0.5451
Income	0.1962
Scenario	<.0001

Table 4.11 ANCOVA of Independent Variables with Physical Risk as Dependent Variable

Independent Variable	p-value from F-test
Gender	0.9328
Trip Frequency	0.1058
Review reading freq	0.8420
Hotel preference	<.0001
Review reading time	0.3845
P or N	0.2832
Online review writing	0.0800
Age	0.7269
Education	0.2126
Marital	0.8906
Employment	0.0002
Income	0.0003
Scenario	<.0001

Table 4.12 ANCOVA of Independent Variables with Psychological Risk as Dependent Variable

Source	p-value from F-test
Gender	0.7074
Trip Frequency	0.9172
Review reading freq	0.8042
Hotel preference	0.1382
Review reading time	0.4801
P or N	0.4108
Online review writing	0.1521
Age	0.7997
Education	0.2997
Marital	0.7352
Employment	<.0001
Income	<.0001
Scenario	<.0001

Table 4.13 ANCOVA of Independent Variables with Performance Risk as Dependent Variable

Source	p-value from F-test
Gender	0.6327
Trip Frequency	0.7134
Review reading freq	0.3451
Hotel preference	<.0001
Review reading time	0.0165
P or N	0.6583
Online review writing	0.5906
Age	0.9708
Education	0.4346
Marital	0.3233
Employment	0.3332
Income	0.0687
Scenario	<.0001

Table 4.14 ANCOVA of Independent Variables with Time-Loss Risk as Dependent Variable

Source	p-value from F-test
Gender	0.2045
Trip Frequency	0.6192
Review reading freq	0.9040
Hotel preference	0.0022
Review reading time	<.0001
P or N	0.5863
Online review writing	0.1585
Age	0.5460
Education	0.1260
Marital	0.7134
Employment	0.9789
Income	0.1251
Scenario	0.4879

Table 4.15 ANCOVA of Independent Variables with Social Risk as Dependent Variable

Source	p-value from F-test
Gender	0.3092
Trip Frequency	0.5373
Review reading freq	0.7136
Hotel preference	0.0003
Review reading time	0.3319
P or N	0.4497
Online review writing	0.1463
Age	0.3552
Education	0.9109
Marital	0.0723
Employment	0.1072
Income	0.2579
Scenario	<.0001

Multiple comparisons were also performed to explore the effect of OCR scenarios on each individual risk dimension. Table 4.16 to 4.20 shows the results from multiple comparison of least squares means of post-treatment overall risk perception between

different scenarios within the perceived risk dimension (time-loss risk is not included because scenario is not a significant predictor in this dimension). For financial risk, C-/P+ and C+/P- were not statistically different ($p=0.5955$) (Table 4.16). The difference between the least squares means of physical risk was not statistically significant ($p=0.0671$) (Table 4.17) between the C+/P+ and C+/P- scenarios, suggesting that physical risk perception was not significantly affected by the comments on peripheral attributes. Psychological risk perception was not distinguishable between C+/P+ and C+/P- ($p=0.4329$) (Table 4.18) as well as C-/P+ and C+/P- ($p=0.1466$) (Table 4.18). For performance risk, C+/P+ and C+/P- cannot be distinguished with statistical significance ($p=0.0695$) (Table 4.19), largely due to the nature of performance risk emphasizes the core attributes of the hotel. Table 4.20 suggests that social risk perceptions in scenarios C+/P- and C-/P+ are not statistically distinguishable ($p=0.1005$). In general, the change in certain dimension of risk perception due to comments on core attributes is statistically significant for all cases, namely C+/P+ vs. C-/P+ and C+/P- vs. C-/P-. However, the effect of comments on peripheral attributes is not significant in some dimensions, i.e. physical risk, psychological risk and performance risk.

Table 4.16 Multiple Comparisons of the Least Squares Means for Different Scenarios with Financial Risk as Dependent Variable

i	j	t-value	p-value from t-test
C+/P+	C+/P-	-4.593	<0.0001
C+/P-	C-/P+	-1.251	0.5955
C-/P+	C-/P-	-12.850	<0.0001

Table 4.17 Multiple Comparisons of the Least Squares Means for Different Scenarios with Physical Risk as Dependent Variable

i	j	t-value	p-value from t-test
C+/P+	C+/P-	-2.481	0.0671
C+/P-	C-/P+	-3.962	0.0007
C-/P+	C-/P-	-9.793	<0.0001

Table 4.18 Multiple Comparisons of the Least Squares Means for Different Scenarios with Psychological Risk as Dependent Variable

i	j	t-value	p-value from t-test
C+/P+	C+/P-	-1.512	0.4329
C+/P-	C-/P+	-2.136	0.1466
C-/P+	C-/P-	-6.696	<0.0001

Table 4.19 Multiple Comparisons of the Least Squares Means for Different Scenarios with Performance Risk as Dependent Variable

i	j	t-value	p-value from t-test
C+/P+	C+/P-	-2.466	0.0695
C+/P-	C-/P+	-5.492	<.00001
C-/P+	C-/P-	-7.764	<0.0001

Table 4.20 Multiple Comparisons of the Least Squares Means for Different Scenarios with Social Risk as Dependent Variable

i	j	t-value	p-value from t-test
C+/P+	C+/P-	-3.371	0.0052
C+/P-	C-/P+	-2.309	0.1005
C-/P+	C-/P-	-8.302	<0.0001

CHAPTER 5. DISCUSSION AND CONCLUSION

5.1 Introduction

Chapter 5 provides the discussion of findings of the survey on OCR effect: dimensions of perceived risk identified in the process of online leisure hotel booking, discussion of effect of the positive and negative reviews, hypothesis tests, and comparisons of the hypothesis test results within dimensions of perceived risk associated with online leisure hotel booking. Also, implications and limitations of this study are presented, as well as recommendations for future studies and conclusions.

5.2 Findings and Managerial Implications

5.2.1 Pre-Treatment Perceived Importance Vary in Different Dimensions

Hypothesis 1 was not supported by the survey results, which suggested that performance risk was one of the most important dimensions of perceived risk associated with online leisure hotel booking. However, physical risk and social risk also proved to be equally important (with 95% confidence level) for the surveyed population. Because the majority of the respondents are students and recent graduates, they tend to have relatively high risk perception towards physical or safety problems, especially associated with unsafe neighborhood, hazardous traffic condition, and possible food borne illnesses, etc.

The surveyed population has relatively limited experience with the real society which explains their high risk evaluation in safety and physical wellbeing. Performance risk is important because individuals care about the product they receive. Specifically in the online hotel booking scenario, the final product is intangible and the quality is hard to define and often times fluctuate from case to case. The surveyed populations are mostly low to mediocre income individuals, who are inevitably concerned about the value they get for their money. The financial risk and performance risk overlaps in this case.

Similarly, the individuals are concerned about other people's opinion of them if they stay in certain hotels. They tend to associate the hotel they stay in with a sort of social status. The more elegant and prestigious the hotel they stay in, the better opinion they believe they can get from others. It is difficult to justify whether or not this is true or just delusional, however, it does provide insights in the customer behavior regarding the connection between commercial products and social images.

Psychological risk has the largest standard deviation, indicating there are significant individual variations in this dimension. In general, the perceived importance of psychological dimension is low although the college/graduate student population tends to be more susceptible to psychological problems (American Psychiatric Association, 2012). The reason why psychological risk is considered not as important is possibly that the individuals do not treat leisure travel or online leisure hotel booking are not important enough to affect their mental status significantly. Time-loss risk proved to be the least important dimension in the overall risk perception, presumably due to the efficient way of online leisure hotel booking.

Admittedly, time-loss risk is also associated with time spent in the hotel. Whether staying in the hotel worth the time can also factor into the final risk perception. However, it may also be confounding with performance risk and financial risk because if negative results happen, the individual will lose both money and time.

5.2.2 Positive OCRs on Core Attributes are Better Risk Relievers

Previous studies have focused on the overall effect of OCR on consumer purchasing intention. Simply, positive OCR increases purchasing intention, whereas negative OCR decreases purchasing intention (Hong, 2006; Karakaya & Barnes, 2010; Lee, Park and Han, 2008; Steffes & Burgee, 2009). Obvious as it is, the body of literature does not have a clear mode of action for OCR influence on consumer behavior. This work utilizes the well-established perceived risk framework to analyze the effect of OCR, in the hope of providing a robust method to characterizing the OCR effect both qualitatively and quantitatively. In order to test the validity of the perceived risk framework, the first step is to justify the effect of OCR on perceived risk associated with online leisure hotel booking and compare the trend against that from the literature. Specifically, the valence of OCR proved to be relevant in terms of affecting the level of post-treatment perceived risk associated with online leisure hotel booking. The positive OCR results in low level of overall risk perceptions, which have a positive impact on the purchasing intentions. Likewise, the negative OCR leads to relatively high level of overall perceived risk associated with online leisure hotel booking, and reduces willingness to buy.

This study accounted for both the valence and the content of the online reviews. Specifically, the valence of the comment is evaluated in the context of core and peripheral attributes. Note that core attributes mentioned in the following discussion are restricted within the realm of cleanliness, location, food and beverage, fitness center and internet service, whereas peripheral attributes are referring to room service, friendliness and efficiency of the staff due to the design limitation of the survey. The comparison between the effects of partially positive OCRs (C+/P- and C-/P+) gives rise to the relative importance of the comments on core and peripheral attributes. It has been discussed in Chapter 4 that the C+/P- review can lower the level of post-treatment overall perceived risk associated with online leisure hotel booking whereas the C-/P+ review does not have a net effect on levels of overall risk perceptions (Table 4.5). The difference between the comments on core and peripheral attributes presumably results from consumers' different opinions on the core and peripheral attributes. For most online leisure hotel consumers, the core attributes are the fundamental value that consumers pay for, whereas peripheral attributes are more like add-ons that are good to have. (Hutchinson, McCleary & Weaver, 1993; Tanford, 2013). The peripheral attributes become a more important criterion when the fundamental requirement for core attributes is met (supported by Hypothesis 3 test). The core attributes, such as room, transport, location, food and beverages, are the major composition of the overall product. If there is something wrong with these deliverables, the consumer would instantly develop significantly high risk perception and dissatisfaction, which can hardly be compensated by good service. Thus, with poor core attributes, the difference in overall risk perception of peripheral attributes is less pronounced. For instance, if a customer saw a review about small and filthy room with

excellent breakfast service, the service would not seem so excellent as opposed to a review about nice and cozy room with decent breakfast service. The negative feelings about the room would be carried over to affect people's opinion on the service, even though the comment said the service was excellent. Alternatively, the positive feelings about the room would also make consumers think that the service is excellent, even if the comment only said the service was decent. The picture of sitting in a prestigious hotel room having breakfast certainly lures consumers to imagine the decent service to be actually awesome. On the contrary, the idea of having breakfast in a smelly and dark hotel room discourages people to even think about the service quality.

The most important finding in this study is that the online reviews on core and peripheral attributes affect peoples' overall risk perceptions differently on general types of hotels. OCRs on core attributes have a more significant effect on lowering the level of consumers' perceived risk associated with online leisure hotel booking than OCRs on peripheral attributes. Thus, it is more critical for the hotel managerial team to understand the customers' risk perceptions on the core attributes, especially for the physical risk, psychological risk and performance risk dimensions. The website design can be tuned in such way that it focuses more on commenting core attributes. Multiple choice questions can be provided for reviewers to give their rating instead of giving them a plain text box.

5.2.3 The Effects of OCR are Contingent on Hotel Preferences

Another interesting finding of this study is that online reviews on core and peripheral attributes have different influences on consumer perceived risk associated with online leisure hotel booking towards different hotel preferences. The body of research

divided hotel preferences in four major categories: luxury, upscale, economy and motel. Data analysis suggests that the effects of OCR contents vary with respect to different hotel preferences.

For consumers who prefer luxury hotels, they generally hold high expectations for both core and peripheral attributes. Therefore, when these consumers read C-/P- comments, their overall risk perceptions increase most significantly among the four hotel preferences investigated (Exhibit 4.1). The C+/P- OCR has no net effect on perceived risk associated with online leisure hotel booking, suggesting that the positive comment on core attributes is counter balanced by the negative comment on peripheral. This is also the only case that the effects of C+ and P- are equal (the effect of C+ outcompetes that of P- in the other three cases), indicating that peripheral attributes are also considered as necessary for consumers who prefer luxury hotels. In contrast, failure on core attributes is most unacceptable for consumers who prefer luxury hotels, indicated by the highest post-treatment overall risk perception for C-/P+ in the luxury preference scenario (Exhibit 4.1). The finding in this section agrees with Kano Model (Kano, et al., 1996) that if the must-be requirements (core attributes) are not fulfilled, the consumer will be extremely dissatisfied (in the context of this study, the dissatisfaction is reflected by increase in perceived risk associated with online leisure hotel booking). For customers who prefer luxury hotels, not only core attributes, but also peripheral attributes are partially must be requirements that are expected by them.

As for customers who prefer upscale hotels, the C+ comments outcompete P- comments, so that the C+/P- OCR results in lower level of the overall risk perception. Comparing to consumers who prefer luxury hotels, the peripheral attributes are not as

emphasized for consumers who prefer upscale hotel. In other words, they are not must be requirements. Moreover, since consumers have relatively low level of overall expectations for upscale hotels as opposed to luxury hotels, C-/P+ comments do not cause significant perceived risk associated with online leisure hotel booking increase for consumers who prefer upscale hotels. Interestingly, this study finds limited difference between upscale hotel and economy hotel preference scenario. This might be due to the fact that the surveyed populations are primarily college/graduate students who have similar expectations for upscale and economy hotels. In the case of motels, consumers have the lowest expectation so that positive comments in either type of attributes are adequate in lowering the level of consumers' overall perceived risk associated with online leisure hotel booking.

The managerial implications are: (1) luxury hotel managers should pay attention to online customer reviews on both core and peripheral attributes, because consumers who prefer luxury hotel have high expectations on both types of attributes. Managers need to address the complaints and negative comments on their official website as well as major search engines in a timely manner in order to reduce the negative impact on consumer perceived risk associated with online leisure hotel booking. (2) Upscale and economy hotel managers need to focus on resolving issues associated with core attributes first before they take care of the peripheral attributes, because the customers who prefer upscale and economy hotels expect more on core attributes than peripheral attributes. (3) For motels, since positive comments on either type of attributes are efficient in lowering the level of consumers' perceived risk associated with online leisure hotel booking, the managers can focus on their advantages either on core attributes or peripheral attributes.

If the hotel is newly decorated, they can navigate the online comments towards core attributes; if the hotel has experienced and professional staff, the managerial team can design their online review system more towards comment on peripheral attributes.

5.2.4 The Levels of OCR Effect for Each Dimension of Perceived Risk

Financial risk is significantly affected by the OCR scenario treatment (Table 4.10). For a more specific comparison, least squares means were obtained for financial risk perception with respect to different scenarios (Figure 4.16). The perceived financial risk in C+/P- and C-/P+ scenarios are not distinguishable, largely because negative consequences in both core and peripheral attributes will make customers think that they won't get the value for their money. Since the OCR scenarios only effect on the PNC, there is equal chance that "staying in this hotel will be a waste of your money".

Physical risk is also determined by the OCR scenario treatment (Table 4.11). The difference in physical risk is not statistically significant between C+/P+ and C+/P- scenarios, because the poor service or impolite staff are unlikely to cause physical damages or safety problems. Comparing to financial risk, C+/P- and C-/P+ are more distinguishable because the negative reviews on core attributes are more pronounced than the negative reviews on peripheral attributes.

For the psychological risk dimension, OCR scenarios proved to be a significant predictor (Table 4.12). In the least squares means comparisons, the psychological risk means in C+/P+ and C+/P- are statistically similar, presumably because the surveyed population are not affected emotionally by poor peripheral attribute as much as by poor core attributes. The fact that C+/P- and C-/P+ are not distinguishable suggests that the

effect of comments on core attributes is also not quite significant for psychological risk. The little effect of core attributes gets cancelled out by the little effect of the peripheral attributes, resulting in null net effect that makes C-/P+ and C+/P- indistinguishable.

As for performance risk, OCR scenarios result in significant differences in post-treatment overall risk perceptions in this dimension (Table 4.13). The means of performance risk in scenarios C+/P+ and C+/P- are slightly different with only 93.05% confidence, suggesting that the performance risk relies more on the core attributes of the hotel. Moreover, the performance risk in the C-/P+ scenario is significantly higher than that in the C+/P- scenario, confirming the fact that core attributes are more important in determining performance risk than peripheral risk.

Time-loss risk is the only dimension that is not associated with OCR scenario treatments. The p-value for scenario is 0.4879 (Table 4.14), and therefore not significant. Two possible reasons can be used to explain the insignificance of scenario in the time-loss risk dimension. Firstly, although the OCR scenarios do involve a comment about time – “the room service was slow (More than an hour waiting, each of 5 times I used it)”, people do not consider this in terms of a waste of time because it is just part of the experience with the hotel. They could have treated this as a defect in the value they get for their money instead of for their time. Secondly, the time-loss risk questions were delivered in a manner that it wanted respondents to consider both the time spent booking the hotel and the time spent staying at the hotel. Consumers may be misled to evaluate their opinion on the time spent booking the hotel instead of staying at the hotel. The second explanation is more plausible because the perceived time-loss risk is associated

with the time spent reading the online reviews. Therefore, it is more relevant to the past online booking experience than to the OCR scenario treatment.

Social risk can be predicted very well by the scenario variable (Table 4.15). Both core and peripheral attributes are observed to be affecting the perceived social risk significantly. The effects of core attributes and peripheral attributes tend to be similar because they can cancel out each other in the comparisons between the C+/P- and C-/P+ scenarios.

Moreover, understanding the specific effects of OCRs on core and peripheral attributes on each dimension of perceived risk associated with online leisure hotel booking helps marketers put their feet into the customers' shoes. This study has proved that in some cases, effect from certain perceived risk dimension on overall perceived risk associated with online leisure hotel booking can be prevalent. Online customer reviewing system in such businesses can be designed to cope with the need to lower the level of perceived risk in this particular dimension.

5.3 Theoretical Implications

The results of this research confirmed that financial risk, physical risk, psychological risk, performance risk, time-loss risk and social risk are the six dimensions of perceived risk (Stone & Gronhaug, 1993; Stone & Mason, 1995; Roselius, 1971), and contribute equally to the overall risk perception. Comments on core and peripheral attributes influence peoples' risk perceptions in different ways, both quantitatively and qualitatively. The OCR effect in each perceived risk dimension revealed the fundamental thinking behind certain consumer behaviors.

This study agreed with previous literature in that most aspects of the core attributes rank higher than peripheral attributes in the customer satisfaction perspective. Similarly, the online customer reviews on core attributes also proved to have a stronger effect than the reviews on peripheral attributes in lowering the level of customers' perceived risk associated with online leisure hotel booking. Moreover, former studies suggested that if core attributes are disappointing, good peripheral attributes can hardly turn around bad impression. This statement was also further confirmed in our study in terms of perceived risk associated with online leisure hotel booking. It has been proved in our Hypothesis 3 that the effect of OCRs of peripheral attributes in lowering the level of customers' perceived risk associated with online hotel booking rely on the core attributes reviews.

Comparing with the previous studies, this research was the first time to evaluate the relationship between OCRs and customers' perceived risk associated with online leisure hotel booking. Moreover, it used both qualitative and quantitative way to measure the effect of OCRs on customers' perceived risk associated with online leisure hotel booking.

5.4 Limitations and Further Studies

One limitation of this study was associated with the sampling method. Snowball sampling is a convenient, cost effective way of getting large amount of data. However, it is also inevitably biased because of its non-random nature. The demographics in the final survey showed that the surveyed population was significantly skewed towards college and graduate students. Specifically, the entire age envelop ranged between 18 and 34, which was the typical age span for college and graduate students. 89% of the respondents

had education level of college or university. The 11% who were in high school education level either had completed high school and were now in college or were working with a high school diploma. The majority of the respondents were single, which fit into the college/graduate student profile. The employment status and annual household income were associated with the major survey population being students/part-time employed and annual household income lower than \$25,000 (typical upper limit for a graduate student salary). Therefore, it is likely that the results of this survey reflected the opinions from more educated individuals with relatively low income, who were in their early career stage. The results perfectly depict the online booking perceived risk associated with online leisure hotel booking profile for this specific sub-population, but cannot be easily extrapolated to other individuals.

It should also be noted that since the surveyed population are mostly college/graduate students, they are more penetrated by the Internet and have better knowledge in utilizing the online search engine, i.e. expedia.com, Travelocity.com, etc. We need to be careful to extrapolate the findings in this study for a more general population with mixed age and education background, since the Internet penetration and ability to perform online search may vary significantly between different age and education background subgroups. In the future study, random sampling method should be used to obtain samples based on a larger population.

Another limitation is related to the boundaries of this study: online leisure hotel booking. The dimensions of perceived risk in different purchasing behavior are expected to be different; however, this study treated each dimension equally and assigned the same weight factor to every dimension. The contents of online customer review samples were

also limited due to space constraint as well as respondent concerns in questionnaire design. Additionally, core attributes were restricted within the realm of cleanliness, location, food and beverage, fitness center and internet service, whereas peripheral attributes were only referring to room service, friendliness and efficiency of the staff due to the design limitation of the survey. If the content gets longer, it can cover more attributes but inevitably becomes more discouraging for the respondents, because no one wants to read a long paragraph in a survey. However, more studies can be carried out to explore the attributes that have not been touched upon and there could be some variations in the results regarding different attributes in the survey.

Additionally, this research focused on the valence and contents of online customer reviews. The other two important factors are the source and the total number of the reviews. Previous study has suggested that the source and the number of the reviews on a certain hotel are correlated to the credibility of the overall rating of the hotel (Sparks, Perkins & Buckley, 2013). Further studies can focus on the relationship between review sources or review amounts and customers' perceived risk associated with online leisure hotel booking.

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APPENDIX

APPENDIX



DEPARTMENT OF HOSPITALITY
AND TOURISM MANAGEMENT

Dear Participant:

You are invited to participate in this survey conducted by Biwei Yang, a Master student in the department of Hospitality and Tourism Management, Purdue University, for her thesis under the supervision of Dr. Hugo Tang. We are interested in learning effect of online customer reviews on customer perceived risks on the pre-booking information search stage of online booking of leisure hotels.

Your participation is very important in helping us to understand the importance and effect of online customer reviews in the hospitality industry. Your responses are anonymous will be kept confidential until the completion of the study, at which time all data will be destroyed. Participants will not be able to search or deduct the information and participation of other participants in this survey.

The survey would take about 15 minutes. You may work on the questions at your own pace. You will not be asked to provide any personal identification information. Your answers are anonymous; DO NOT put your name on the survey. Your responses will be seen only by the researchers. By completing the questions you are agreeing to participate in the research. Your participation is totally voluntary.

Should you have any questions regarding the research, please contact me at yangbiwei@purdue.edu or my supervisor Dr. Tang at tang14@purdue.edu . If you have any concerns about the research protocol, please contact IRB at irb@purdue.edu.

Thanks for your time and participation!

Biwei Yang

Department of Hospitality and Tourism Management

Purdue University

[Part 1]

Booking Experience

01. How often do book the hotel online for leisure trips?
- For almost every trip
 - For about every other trip
 - About once for every 3~10 trips
 - About once for every 10+ trips
02. For leisure trips, which one of the following matches your preference better?
- Luxury hotels
 - Economy hotels
 - Up-scale hotels
 - Motels
03. How often do you read online reviews before you book the hotel for leisure trips?
- For almost every hotel booked
 - For about every other hotel booked
 - About once for every 3~10 hotels booked
 - About once for every 10+ hotels booked
04. On average, how much time do you spend to read online reviews before booking the hotel?
- 5 min for each booking
 - 21~30 min for each booking
 - 6~10 min for each booking
 - Over 30 min for each booking
 - 11~20 min for each booking
05. When you read online reviews, do you pay more attention to:
- Positive reviews
 - Negative reviews

[Part 3]

Scenario

You will be directed to a treatment randomizer where you will be present with a piece of consumer online review comment. Please be advised that you WILL NOT be able to come back to the previous pages with a back button on the next page. Thus, please make sure you have all the questions answered before you move on. Thanks!

We are interested in knowing how online review comments affect your perceptions towards booking hotels online. Below is a consumer review comment adopted from a popular online hotel review site. After reading this sample comment, you will be presented two sets of questions to measure (1) your estimation of the OCCURRENCE PROBABILITY and (2) the LEVEL of your upset for the events listed.

Scenario: You are planning a trip for an up-coming vacation. You have been waiting for this trip for quite a long time and the satisfaction of this trip means a lot to you. After searching online for lodging options, you narrowed down your choice to one hotel. You searched a popular hotel review website and found the following comment about your target hotel. (Only one of the following comments will be given to each respondent)

Consumer online review comment

“Great facility, horrible service

In addition to cleanliness, it is centrally located to all the various hotels and attractions on the strip from north to the south. I loved the fitness gym and easy Internet access. Other hotels I stayed in did not have multiple computers in a separate computer terminal area for privacy, away from the crowd in the lobby. The food at a variety of restaurants was delicious.

However, room service was slow (More than an hour waiting, each of 5 times I used it). The staff weren't very friendly, and compared to other resorts, there seemed to be fewer wait staff taking drink orders by the pool. The front desk manager was in a very arrogant

manner and refused to extend our check-out time to noon.

---by Ana from Los Angeles, CA”

“Great facility, great service

In addition to cleanliness, it is centrally located to all the various hotels and attractions on the strip from north to the south. I loved the fitness gym and easy Internet access. Other hotels I stayed in did not have multiple computers in a separate computer terminal area for privacy, away from the crowd in the lobby. The food at a variety of restaurants was delicious.

However, room service was fast (less than 20 minutes, each of 5 times I used it) and the food was very good and always hot.

Everyone was very friendly, and compared to other resorts, there seemed to be more wait staff taking drink orders by the pool. The front desk manager was very nice to extend our check -out time to noon.

---by Ana from Los Angeles, CA”

“Poor room, great service

The hotel is located quite far away from attractions on the strip. The fitness gym has limited number of equipment and the Internet access is very unstable. Other hotels I stayed all have multiple computers in a separate computer terminal area for privacy, away from the crowd in the lobby. However, this hotel does not provide free computers or printers. The hotel decoration is outdated and bathroom is really tiny.

However, room service was fast (less than 20 minutes, each of 5 times I used it) and the food was very good and always hot. Everyone was very friendly, and compared to other resorts, there seemed to be more wait staff taking drink orders by the pool. The front desk manager was very nice to extend our check-out time to noon.

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Moreover, room service was slow (More than an hour waiting, each of 5 times I used it). The staff weren't very friendly, and compared to other resorts, there seemed to be fewer wait staff taking drink orders by the pool. The front desk manager was in a very arrogant manner and refused to extend our check-out time to noon.

---by Ana from Los Angeles, CA”

[Part 3]

Measurement of Levels of Perceived Risk

The questions below are to measure your estimation of the probability for the listed events to happen.

I Feel That There Is Absolutely <u>No</u> Chance At All							I Feel That The Situation <u>Will</u> Absolutely Occur	
1	2	3	4	5	6	7	8	9

14. What do you think is the probability that staying in this hotel will be a waste of your money?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

15. What do you think is the probability that you will run into problems regarding your safety during staying in this hotel?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

16. What do you think is the probability that staying in this hotel will negatively affect others' opinion of you?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

17. What do you think is the probability that booking this hotel will require too much

planning time?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

18. What do you think is the probability that there will be problems in the hotel room facilities or service?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

19. What do you think is the probability that staying in this hotel will hurt your self-image?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

How bothered or upset would you be if the following events happen to you?

I would Not be Bothered or <u>Upset</u> at All					I would be Extremely <u>Bothered</u> and <u>Upset</u>				
1	2	3	4	5	6	7	8	9	

20. The experience of staying in this hotel was not worth the price.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

21. The hotel facilities or service staff did not perform well.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

22. Your friends laughed at you because you made the wrong decision booking this hotel.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

23. Booking or staying in this hotel was a waste of time.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

24. You had health problems because of staying in this hotel.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

25. Staying in this hotel hurt your self-image.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

[Part 4]
General Questions

26. What is your gender?

- Male Female
 Prefer not to disclose

27. What is your age?

- Under 18 18 to 24
 25 to 34 35 to 44
 45 to 54 55 to 64
 65 and over Prefer not to disclose

28. What is your highest level of education?

- Have not completed high school College or University
 High School Graduate or professional degree

29. What is your current marital status?

- Single Married

30. What is your current employment status? (Check all that apply)

- Student Unemployed
 Part-time job Full-time job
 Business owner Other

31. What is your approximate annual household income?

- \$14,999 or less \$15,000 to \$24,999 \$25,000 to 49,999
 \$50,000 to 74,999 \$75,000 to 99,999 \$100,000 to more

The survey is complete. Thank you for your participation in this study!