

THE EFFECT OF MULTIDIMENSIONAL PERCEIVED RISK ON INTENTION TO BUY AIR TICKETS ONLINE

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Abstract

Airlines face stiff competition and high operational costs. To earn profits, reducing cost is crucial. Cost can be reduced effectively by selling air tickets online. However, many travellers in developing countries remain hesitant to book flights online. This study investigates the influence of risk perceptions on consumers' online buying intention of air tickets in Malaysia. PLS-SEM was used to test the research model which treated perceived risk as a multidimensional, higher-order construct reflected by five risk dimensions. The results show that perceived risk has a negative influence on online buying intention of air tickets. It was also confirmed that perceived risk comprise of five individual risk dimensions i.e. security, privacy, financial, performance and psychological risks. This study contributes to the perceived risk theory by conceptualizing perceived risk as a higher component model, and linking risk to buying intention in a developing market.

Keywords: *perceived risk, air tickets, online, intention, risk dimension*

Introduction

Airlines face intense competition and high operating costs resulting in the struggle to earn sufficient revenue to cover costs, and deliver profits. Substantial cost savings can be derived from the usage of electronic-ticketing (e-ticketing). Recognised by the International Air Transport Association (IATA), e-ticketing was made compulsory for all IATA member airlines from June 2008 onwards (SITA, 2009). This system enabled air travellers to book tickets directly online, bypassing physical travel agencies and airline sales office leading to major cost savings to airlines.

Worldwide, online bookings of air tickets have risen over the years. Notably, most online purchases are from advanced nations such as the United States, United Kingdom and Japan (WNS, 2014). However, in less developed nations such as Malaysia, many travellers continue to book flights from traditional offline

channels. To improve their bottom line, airline managers should understand why travellers refuse to book online. Then only better ways may be developed to encourage more people to buy air tickets online in Malaysia. Some past research indicates greater perceived risk of purchasing from online than offline store types (Pavlou, 2003; Susskind & Stefanone, 2010). Hence, this paper aims to answer the following research questions: (1) What risks regarding online ticket bookings are perceived by air travellers in Malaysia? (2) What is the effect of this risk perception on air travellers' intention to buy tickets online?

The paper is structured as follows. First, the literature on travellers' behaviour, perceived risk, and buying intention are reviewed. Second, the methodology used is described. Third, the results are analysed and the findings provided. This is followed by a discussion and implica-

tion of the study as well as future research directions.

Literature Review

Travellers' Behavior

Despite knowing the advantages of buying air tickets online such as greater convenience, and usually cheaper prices (Crespo-Almendros & Del Barrio-García, 2016), many consumers still refuse to buy from the internet though most of them check out flight information on the web (Ruiz-Mafé, Sanz-Blas, & Aldás-Manzano, 2009). Malaysian travellers have been found to behave likewise too (Singapore Tourism Board, 2014; Tourism Australia, 2013).

To buy air tickets online, a consumer must use self-service technology to surf the internet for information on ticket prices, routes, make comparisons, and then key in the correct details for booking purposes (Cunningham, Gerlach, Harper, & Young, 2005). If any mistakes are made, the consumer will suffer. Generally, there are many obstacles in rectifying mistakes particularly when it involves changing travel itineraries. Thus, there is more perceived risk of buying air tickets online than offline.

Theory of Perceived Risk

Consumer perceived risk was conceived by Bauer (1960) who observed the impossibility of avoiding risk in purchasing since no one can be certain of the consequences before purchase. As some buying outcomes will be bad, unsurprisingly consumers perceive the presence of risk for any items to be bought. Other authors extended Bauer's (1960) idea by separating risk into two parts: a "chance" aspect related to probability and a "danger" aspect about the extent of bad outcomes (Dowling, 1986; Kogan & Wallach, 1964).

From another perspective, Cox and Rich (1964) described perceived risk as the amount involved in a purchasing

decision, and the consumer's subjective feelings of certainty that she will "win" or "lose" all or some of the amount paid. Similarly, Cunningham (1967) asserted that buying decisions involve probabilities that are rarely known, so consumers tend to evaluate purchase risk subjectively. Mitchell's (1999) literature analysis revealed that the term "risk" and "uncertainty" had been used interchangeably by marketers, perhaps because consumers can never know the exact probability of a purchase outcome. Overall, the dominant argument is that risk is subjectively perceived rather than objectively calculated.

Perceived Risk Dimensions

Financial Risk

Financial risk usually refers to economic loss such as losing money. People tend to put more importance on price in judging the financial risk of purchasing (Grewal, Gotlieb, & Marmorstein, 1994). Financial risk is considered as the risk of paying more to buy an item from a seller than others. In online shopping, Forsythe and Shi (2003) described financial risk as net monetary loss to a consumer (p.869).

Higher financial risk is attached to online shopping due to the absence of face-to-face contact with the seller and pre-purchase inspection of goods. Thus, money could be lost from a bad purchase, inability to return goods bought, non-receipt of goods after payment (Jarvenpaa & Todd, 1996) or spending more to repair defective goods (Lim, 2003). Financial risk is perceived in online shopping for various items including air tickets (Cunningham et al., 2005; Ueltschy, Krampf, & Yannopoulos, 2004).

Privacy Risk

Risk of privacy intrusion refers to the degree of consumer perceptions of lost privacy due to information gathered about them during online shopping (Jarvenpaa & Todd, 1996). It pertains to

consumers' uncertainty regarding website sellers collection, usage and distribution of information about the individual and their behaviour to others without their permission and knowledge beforehand (Featherman, Miyazaki, & Sprott, 2010).

E-commerce studies support there is perceived privacy risk of internet usage among consumers. For instance, Yang et. al (2015) found a significant relationship between privacy risk and overall perceived risk, which indicates consumer concerns about the likelihood of personal details leakage when engaging in online transactions. Similarly, another study with internet users showed a significant association between privacy risk and perceived risk (Crespo, del Bosque, & de los Salmones Sánchez, 2009) suggesting that consumers worry about loss of control over their private information caused by online shopping.

Security Risk

Consumers often mention security risk as one of the top reasons for rejecting online shopping. Perceived security risk in e-commerce refers to the level of uncertainty and mistrust arising from thoughts of revealing private and financial information online (Coker, Ashill, & Hope, 2011). Such risk reflects an intrinsic judgmental belief of the insecurity of using the internet for purchasing (Coker et al., 2011).

Security risk is also related to consumer perceptions that anonymous third parties may hack into computer systems to steal their transaction-related, personal, or financial information since credit card details must be transmitted online to the web seller as payment for purchases (Nepomuceno, Laroche, Richard, & Eggert, 2012). For booking travel online, it has been found that consumers have perceptions of security risk (Park, Tussyadiah, & Zhang, 2016). Similarly, perceived security risk was cited by Hong

Kong consumers as the reason for not wanting to book air tickets online (Kolsaker, Lee-Kelley, & Choy, 2004).

Performance Risk

Commonly associated with a product's functional aspects (Cases, 2002), performance risk is related to consumers' perceptions that a product or service under purchase consideration may not meet expectations. Several authors observed that such risk could be higher when the consumer has no chance to try and inspect items before purchasing, for example in catalogue or online shopping (Forsythe & Shi, 2003; Jarvenpaa & Todd, 1996) resulting in a poor choice.

For services, performance risk can arise due to the possibility that the service bought may not be carried out satisfactorily (Mitchell, 1992). In a study on online service adoption, Featherman and Pavlou (2003) found that potential adopters place a lot of importance on perceived performance risk. Limited studies also demonstrate that performance risk is a significant factor which affects travellers' decision to purchase air tickets online (Ruiz-Mafé et al., 2009).

Psychological Risk

Perceived psychological risk has been described as the possibility of having to bear mental distress due to online purchasing (Lim, 2003) or self-disappointment from a bad purchase (Cases, 2002). Similarly, Forsythe and Shi (2003) found that consumers often mention psychological risk as their reason for not shopping online.

Perceived psychological risk has a significant effect on consumers pondering over the adoption of online transactions (Featherman & Wells, 2010). Another study on air tickets, clothing, health and beauty products, consumer electronics as well as furniture showed that online shoppers are most worried about psychological risk (Griffin & Viehland, 2010).

Similarly, for online purchasing of air tickets, Ruiz-Mafé et al. (2009) found psychological risk to be the main concern of internet users who dread losing self-esteem, suffering stress, and anxiety from buying the wrong ticket online.

Buying Intention

The dependent variable of this study is online buying intention for air tickets. Based on the Theory of Reasoned Action (TRA), behavioural intention relates to the subjective likelihood of a person following through with a shown behaviour (Fishbein & Ajzen, 1975). Intention can fall anywhere from low to high probability that a behavior will actually be performed by a person. For individual consumers, there may be varying degrees of buying intention – from none to high buying intention. The TRA also posits that behavioural intention is the main predictor of actual behaviour. Furthermore, Ajzen (1991) noted that people's intentions reflect motivations that influence their behavior. The stronger an individual's intention to perform an act, the higher the probability of the act being carried out (Ajzen, 1991).

When behavioural intentions are measured appropriately, it is possible to obtain a high degree of accuracy in predicting actual behaviour (Ajzen & Fishbein, 1973). Although there is no perfect correlation between intention and behavior in real -life, the former has been widely applied to represent actual buying behaviour under academic and commercial settings (Chandon, Morwitz, & Reinartz, 2005). Moreover, research on purchase intention continues to remain relevant in recent years as observed from studies relating to online shopping (e.g. Mohseni, Jayashree, Rezaei, Kasim, & Okumus, 2016; Pappas, Kourouthanasis, Giannakos, & Lekakos, 2016) and travel products (e.g. Bonsón Ponte, Carvajal-Trujillo, & Escobar-Rodríguez, 2015;

Filieri, McLeay, & Tsui, 2017; Mohseni et al., 2016).

Perceived Risk and Buying Intention

In general, consumers perceive shopping risk during the early stages in the five-stage decision making process (Kotler & Armstrong, 2016). Buying risk is perceived as soon as the consumer recognize the need for a product, and tends to remain until the time of actual purchase (Cunningham et al., 2004). Consequently, they affect consumer intention to proceed with or stop the purchase.

Evidence from past studies shows that risk perceptions can influence consumer buying behaviour online and offline. For online shopping, some of the items researched included travel shopping (Amaro & Duarte, 2013), air tickets (Cunningham et al., 2005), apparel shopping (Cases, 2002; Lim, 2003) and electronic items (Coker et al., 2011). Overall, these studies demonstrate that perceived risk have a direct negative relationship with intention to shop online. Therefore, it is proposed that:

H1: Consumers' risk perceptions have a negative relationship with online buying intention for air tickets.

Methodology

Data Collection and Measurement Development

As this research relates to internet buying intention, data was appropriately collected online. The survey questionnaire was developed in English, based on questions adapted from several past studies (i.e. Featherman & Pavlou, 2003; Kim, Kim, & Leong, 2005; Ruiz-Mafé et al., 2009). It was divided into two sections. The first section requested for demographic data while the second comprised of the survey questions with the response to each question anchored on a seven-point Likert scale from (1)

strongly disagree to (7) strongly agree. A pre-test test was conducted before actual data collection. From the feedback, some wordings were amended to improve the clarity of the questions. Thereafter, the questions were inserted into Google Docs. This is followed by invitations to potential Malaysian respondents, which included a link to participate in the online survey via emails as well as the social media including WhatsApp and FaceBook. At the end of the survey period, a total of 304 replies were received. After the data was screened, 231 responses remained.

Results

Descriptive Analysis

The profile of the respondents is shown in Table 1. Of the total 231 responses, 29.9% and 64.1% were males and females respectively. Most respondents were between 30 and 39 years old (33.3%), followed by the 18 to 29 age group (24.7%). Both the 40 to 49, and 50 to 59 age groups made up 15.6% each. This is followed lastly by the 60 and above age group with 10.8% of the total respondents. Most respondents received a tertiary education (83%) with the rest having completed secondary or vocational school only.

Table 1: The Respondents' Profile

	Frequency	Percent
Gender (n = 231)		
Male	69	29.9
Female	148	64.1
Missing	14	6.1
Age		
18-29	57	24.7
30-39	77	33.3
40-49	36	15.6
50-59	36	15.6
60 and above	25	10.8
Highest level of educational attainment		
Secondary/vocational school	38	16.4
Diploma	25	10.8
Bachelor degree	53	22.9
Post-graduate	92	39.8
Professional degree	22	9.5

Data Analysis

Descriptive data analysis was done using SPSS version 20. Then, SmartPLS 2.0.M3 (Ringle, Wende, & Will, 2005) was

used to validate the measurements and test the hypotheses. PLS-SEM is a vigorous technique that enables complex higher-order models to be measured. In this study, Perceived Risk, is conceptualized as a higher-order reflective-reflective construct (Jarvis, Mackenzie, & Podsakoff, 2003). As suggested by Chin (2010), the two-step procedure was followed to evaluate the research model. First, the measurement model is evaluated for reliability, followed by convergent and discriminant validity. Second, the structural model is examined for the strength and direction of the path relationship.

• Measurement Model Evaluation

As shown in table 2, composite reliabilities range from 0.889 to 0.956 whereas Cronbach's alpha were between 0.809 and 0.909. The values are well above the minimum threshold of 0.70, indicating high internal consistency reliability within each construct (Nunnally, 1978).

Table 2: Construct Reliability and Convergent Validity

Construct/Indicators	Item	Outer loading	t-value	CR	AVE	CA
If I use the internet to buy air tickets:						
Security Risk (SECR)				0.932	0.821	0.891
• it would be insecure to send sensitive information on the internet	S1	0.895	47.047			
• my credit card details are likely to be stolen	S2	0.916	71.077			
• my personal details could be accessed by unknown third-parties	S3	0.907	60.153			
Privacy Risk (PRVR)				0.889	0.728	0.809
• my personal details could be used without my consent	PR1	0.900	46.530			
• my personal details could be used without my knowledge	PR2	0.891	50.525			
• I'd receive a lot of spam in future	PR3	0.762	23.028			
Financial Risk (FINR)				0.909	0.770	0.850
• I would not get my money's worth from the tickets	F1	0.907	70.429			
• it would be a financial loss to me	F2	0.882	46.249			
• it would be unwise as I can get a better deal elsewhere	F3	0.841	32.624			
Performance Risk (PEFR)				0.913	0.778	0.857
• it would be difficult to find out about the flight characteristics (time schedule, routes, etc.)	PE2	0.846	27.135			
• I am not confident about the ability of the online seller to perform as expected	PE3	0.898	54.057			
• considering the possible problems associated with the online seller's performance, there is a lot of risk involved	PE4	0.901	70.063			
Psychological Risk (PSYR)				0.911	0.774	0.854
• I would feel anxious	PS2	0.914	54.246			
• I would feel unnecessary stress	PS3	0.897	43.195			
• I would feel it does not match my self-image (the way I think of myself)	PS4	0.825	25.285			
Online Buying Intention (BI)				0.956	0.916	0.909
• I will probably use the Internet to buy air tickets in the future	BI1	0.955	131.017			
• I plan to buy air tickets online sometime in the future	BI2	0.959	131.223			

Note: CR=Composite Reliability, CA=Cronbach's alpha, AVE=Average Variance Extracted

Then, the model was tested for convergent and discriminant validity. Convergent validity was measured using the average variance extracted (AVE). The acceptable lower threshold is 0.50 (Fornell & Larcker, 1981). From table 2, all AVE scores are above 0.50 supporting convergent validity of the indicators for each construct. To confirm discriminant validity, the data was first screened for cross loadings. As a result, the number of indicators was reduced from 19 to 17 in order to improve the model quality. Next, the AVE square root of a construct must be higher than its correlation with other constructs (Fornell & Larcker, 1981). In table 3, the off-diagonal values are lower than the AVE square root along the diagonal, thus establishing adequate discriminant validity between each construct in the model.

Evaluation of the higher order model
 Since the repeated indicators approach is generally used to assign all indicators of the lower-order constructs (LOCs) to the

Table 3: Discriminant validity of the constructs

	BI	FINR	PEFR	PRVR	PSYR	SECR
BI	0.957					
FINR	-0.501	0.877				
PEFR	-0.570	0.766	0.882			
PRVR	-0.404	0.577	0.560	0.853		
PSYR	-0.569	0.680	0.772	0.515	0.880	
SECR	-0.451	0.670	0.646	0.661	0.574	0.906

higher-order construct (HOC)(Hair, Hult, Ringle, & Sarstedt, 2014), it is similarly applied on the current research model. Convergent validity was assessed for the HOC, Perceived Risk. As shown in table 4, four outer loading values are slightly below 0.70 ranging from 0.630 to 0.672, and significant at $p < 0.001$. Hence, they

Table 4: Convergent validity between the HOC (Perceived Risk) and its indicators

Construct/Indicators	Outer loading	t-value	AVE
Perceived Risk (PR)			
S1	0.741	19.145	
S2	0.777	25.781	
S3	0.766	26.815	
PR1	0.630	12.919	
PR2	0.649	14.639	
PR3	0.672	16.684	
F1	0.803	31.754	0.553
F2	0.784	26.913	
F3	0.724	19.563	
PE2	0.749	21.141	
PE3	0.781	29.002	
PE4	0.832	40.424	
PS2	0.794	27.322	
PS3	0.767	23.000	
PS4	0.655	12.628	

are retained for further analysis. Then, the relationship of the HOC, Perceived Risk, and its LOCs was assessed. The results in table 5 show that all outer loadings are over 0.70, and significant at $p < 0.001$. Thus, this confirms convergent validity between Perceived Risk and its LOCs.

Table 5: The relationship between the HOC and LOCs

Higher-Order	Lower-Order	Outer Loading	t-value
Perceived Risk	Security Risk	0.841	34.537
	Privacy Risk	0.768	23.259
	Financial Risk	0.879	46.537
	Performance Risk	0.894	59.372
	Psychological Risk	0.843	32.073

Discriminant validity between Perceived Risk and the other model construct, Online Buying Intention was assessed via the Fornell-Larcker (1981) guideline. From table 6, the AVE square root on the diagonal are higher than the off-diagonal value. Hence, there is adequate discrimi-

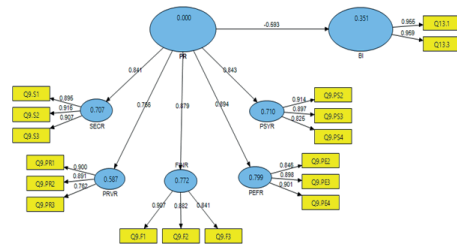
Table 6: Discriminant validity between Perceived Risk and Online Buying Intention

Construct	PR	BI
Perceived Risk (PR)	0.744	
Online Buying Intention (BI)	-0.593	0.957

nant validity between the two constructs. **Structural model evaluation**
 Several criteria have to be evaluated i.e. collinearity issues, model relationships, and predictive relevance. The variance inflation factor (VIF) is used to check for collinearity between constructs in the structural model. In this case, the inner VIF between PR and BI is 1.195 which is far below the threshold value of 5 thus indicating no major problems with collinearity.

The model relationship can be evaluated from the path model. From figure 1, the path coefficient from PR to BI is -0.593 and significant ($p < 0.001$; $t = 15.682$). This result provides statistical support for the hypothesized relationship that consumer risk perceptions are negatively related to online buying intention for air tickets.

Figure 1: The PLS-SEM test results



As for predictive relevance, the coefficient of determination, R^2 , was examined. R^2 values may fall between 0 and 1. From figure 1, the R^2 for the endogenous construct, BI, is 0.351. Although in general, higher R^2 indicates higher level of accuracy, the acceptable value depends on the research discipline. For consumer behaviour studies, R^2 of 0.20 are considered high (Hair et al., 2014). As the current research falls under this discipline, it can be interpreted that the model explains a high amount of variance in BI, the endogenous construct. Another predictive relevance criteria is the Q^2 value by Stone (1974) and Geisser (1974). Using the blindfolding procedure provided by SmartPLS 2.0.M3 (Ringle et al., 2005), the Q^2 value is computed as 0.320. Since the Q^2 value is greater than 0, it suggests that the study model has predictive relevance for the endogenous construct, BI (Hair et al., 2014).

Discussions and Implications

The study results support the research model in figure 1, and the hypothesis about the directional linkage between the variables. Additionally, the R^2 value of 35.1% for the dependent variable, BI, indicates that the research model is capable of explaining a significant proportion of variation in online buying intention for air tickets. Thus, the findings are in line with the theory of perceived risk. Consumers perceive there are risks of buying air tickets on the internet, which

in turn influence their intentions to book flights online. The higher the risk perceptions of the internet as a purchase medium, the lesser the intention to buy air tickets online.

Other results of the study empirically support that perceived risk is multidimensional. In particular, the individual dimensions are security, privacy, financial, performance and psychological risks. Each dimension is reflected in near equal proportion by perceived risk as shown in figure 1. This implies that in the overall assessment of perceived risk of buying air tickets online, consumers consider all five dimensions of risk. From table 3, the statistical results which show discriminant validity between the individual risk dimensions suggest that from a consumer perspective, each type of risk is viewed as separate aspects of buying risk. Collectively, they are considered by consumers for decisions concerning where to buy air tickets.

Research investigating perceived risk in terms of its multidimensional characteristics, in relation to online air ticket bookings, has been rather limited thus far. For example, Kim et al.'s (2005) study on U.S. travellers identified seven dimensions of perceived risk, named as social, time, financial, performance, physical, psychological, and security risk. Except for physical risk, the other risk dimensions were shown to have a significant negative relationship with purchase intention of air tickets online. However, the authors did not link the individual risk dimensions to an overall measure of perceived risk. Subsequently, the same authors demonstrated that perceived overall risk comprise of performance, security, financial, physical, psychological and time risks (Kim, Qu, & Kim, 2009). However, the second study did not include purchasing intention of air tickets online. As opposed to the studies by Kim

et al. (2005, 2009), the current research investigated overall perceived risk, and linking it to online buying intention. Hence, this study helps to widen the understanding of perceived risk by testing the theory under online settings.

Practically, the study findings imply that airline firms should address each of the different dimensions of risk and their overall effect on perceived risk as discussed above. It is particularly important for airline managers to handle each type risk perceptions properly and carefully so that they fall below consumers' threshold limit, in order to increase intentions to buy air tickets online.

Limitations and Recommendations for Future Research

This study has some limitations. Caution must be exercised about the generalizability of the findings as convenience sampling was employed for data collection. This is due to the unavailability of a full list of internet users in Malaysia. Nevertheless, it is a useful indication of Malaysian consumers' behavioural intention regarding buying air tickets online. Future research could investigate the model for its applicability in other developing countries. Perhaps a comparison could be drawn between risk perceptions held by consumers from different emerging countries and cultures to enrich knowledge in this area. Future studies could also apply the research model on other products and services to test its broader relevance for various items sold online.

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