

# Examining the Effects of Perceived Risk on Consumers' Online Purchase Intention in Klang Valley

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## ABSTRACT

This study examined the relationship between perceived risk and online purchase intention, including the roles of trust and subjective norms as a mediator and moderator in the relationship. A survey method was used to collect data and the hypotheses were tested using quantitative analysis. 250 respondents completed the online survey, and the results were evaluated using IBM SPSS Statistics 26 and SmartPLS 3.3.3. Based on the findings, perceived risk was found to negatively affect online purchase intention and trust, while trust was positively associated with online purchase intention and significantly mediated the relationship between perceived risk and online purchase intention. Subjective norms were also found to moderate the relationship between perceived risk and online purchase intention. Thus, when the level of subjective norm is low, the relationship between perceived risk and online purchase intention becomes stronger. This study would be beneficial to the online vendors involved in e-commerce activities. Since many online vendors are still facing certain risks in their online businesses that would consequently affect their transactions and performance, they can use the insights gained from the findings of this study to have a better understanding of consumers and provide effective marketing strategies to enhance trust and reduce risks.

**Keywords:** Perceived Risk, Trust, Subjective Norms, Quantitative Research, Online Purchase Intention.

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## INTRODUCTION

The Internet, which allows individuals to purchase and sell products and services at any time and in any place, has become a platform for transactions between consumers and new start-ups in local and global marketplaces worldwide (Mohd Johan et al., 2019). In fact, the trend of online shopping is on the rise as consumers are increasingly embracing electronic platforms to purchase products or services. In 2022, the global ecommerce market is estimated to reach \$5.55 trillion. This figure is expected to rise in the future years, indicating that borderless ecommerce is becoming a viable business model for online businesses (Keenan, 2022). Following the introduction of the Internet, the retail landscape has undergone a major change and digitalisation has become an integral part of our daily life; hence, consumers from every country today benefit from the convenience of online purchases (Coppola, 2021).

Despite the stunning and huge growth of e-commerce or online shopping, this remarkable advancement has resulted in some issues and challenges to online users such as payment security, personal data protection, vendor's reputation, inadequate information transparency, and product quality (Paynter & Lim, 2001). Although both the government and private sectors have invested heavily in the development of online shopping platforms, most consumers still prefer to shop in physical stores, especially for clothing and household goods (Ramayah & Ignatius, 2015). Compared to traditional retail channels, consumers perceive greater risks towards online shopping (Hong & Yi, 2012).

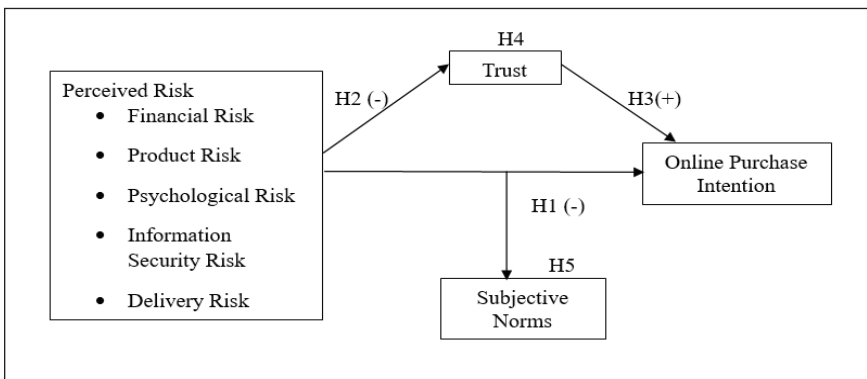
Although various studies (Hong et al., 2019; Masoud, 2013; Pelaez et al., 2019; Sudibyo et al., 2020) have been conducted to examine the effects of perceived risk on online purchase intention, there has been a dearth of studies focusing on trust as a mediator and subjective norms as a moderator in the relationship between perceived risk and online purchase intention.

The objectives of this study were (1) to examine the effects of perceived risk on consumers' online purchase intention, (2) to examine the relationship between perceived risk and trust, (3) to examine the relationship between trust and online purchase intention, (4) to examine the mediating effect of trust on the relationship between perceived risk and online purchase

intention and (5) to examine the moderating role of subjective norms in the relationship between perceived risk and online purchase intention.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

In this study, online purchase intention served as the dependent variable, while the independent variable entailed perceived risk that comprises financial risk, product risk, psychological risk, information security risk, and delivery risk. In addition, this study also included subjective norms as a moderating variable and trust as a mediating variable. The research framework that details the concept pertinent to this study is depicted in Figure 1.



**Figure 1: The Research Framework**

### Theory of Planned Behaviour

Figure 1 depicts the proposed research model based on the Theory of Planned Behaviour (TPB) to understand online purchase intention. Evidently, the TPB is one of the most effective models for predicting intention and is most commonly used to predict behaviour in social psychology (Maichum et al., 2016).

## Online Purchase Intention

Consumer purchase intention refers to consumers' deliberate plans to purchase or acquire a product as a result of a personal process with evaluative and normative judgements (Visentin et al., 2019). According to Martins et al. (2019), purchase intention refers to the likelihood that consumers are willing to acquire a specific product or service in the future. In other words, purchase intention is the possibility that consumers will purchase a product or service after evaluating it (Younus et al., 2015).

## Perceived Risk

Consumers' expectations of purchase losses is defined as perceived risk, which acts as a disincentive to purchase behaviour and uncertainty, including other common feelings that exacerbate the situation such as anxiety, discomfort, psychological discomfort, cognitive dissonance, and concerns (Featherman & Pavlou, 2003; Hong & Ismail, 2021). Due to the versatility of the concept, perceived risk is universally applicable to most marketing scenarios because most consumers prefer to avoid making mistakes in their purchases (Liew, 2018). The five dimensions of perceived risk, namely financial risk, product risk, psychological risk, information security risk, and delivery risk were included in this study.

Since previous research has evidenced the negative relationship between perceived risk and online purchase intention (Singh & Srivastava, 2018; Tarawneh et al., 2021), it can be deduced that the expansion of the Internet has indeed caused consumers to be more concerned about their purchase decisions since they will consider the risks involved (Naiyi, 2004). While perceived risk is strongly affected by information security risk and product risk, payment risk and personal data security are also among the greatest threats that affect purchase intention on the Internet (Khairunnisa et al., 2018). Additionally, Masoud (2013) indicated that financial risk such as the fear of disclosing credit card information or losing money and delivery risk such as the fear of non-delivery orders both can negatively affect online purchase intention. Moreover, Amirtha et al. (2021) and Sudibyo et al. (2020) also found that psychological risk has a negative and significant effect on e-shopping behavioural intention among Indian women. Overall, these past studies suggest a negative yet significant association between

perceived risk and online purchase intention. Based on the discussion above, the following hypothesis is presented:

**H1:** Perceived risk has a negative effect on online purchase intention.

## **Trust**

Trust refers to the extent to which individuals believe in and seek to rely on others (Hong & Ismail, 2021; Luo et al., 2019). According to Krueger and Meyer-Lindenberg (2019) and Pentina et al. (2013), trust is a scenario in which a trustor relies on the actions of a trustee and believes that the trustee will act predictably. With the rise of e-commerce in the last few decades and businesses' desire to use the internet, trust has become a key notion in the e-commerce sector (Kim & Peterson, 2017). Thus, in the context of the present study, consumers who shop online confront more uncertainties than those who shop offline (Hult et al., 2019). Trust is among the crucial factors influencing purchase decisions (Lăzăroiu et al., 2020).

Reduced perceived risk leads to more trust in dealing with online vendors (Lukito & Ikhsan, 2020). According to Liebermann and Stashevsky (2002), perceived risk will be reduced when consumers make more purchases and have more similar purchase experiences. Based on the discussion above, the following hypothesis is presented:

**H2:** Perceived risk has a negative effect on trust.

Trust and risk play a significant role in completing transactions because internet commerce can be inherently dangerous (Pavlou, 2003). Lin et al. (2018) found that consumers are more willing to purchase online when trust exists and some studies have also found a positive relationship between trust and online purchase intention (Agag et al., 2019; Ventre & Kolbe, 2020). Based on the discussion above, the following hypothesis is presented:

**H3:** Trust has a positive effect on online purchase intention.

## **Mediating Role of Trust Between Perceived Risk and Online Purchase Intention**

In accordance with prior research such as by Kindangen et al. (2021), trust was found to have a mediating effect on the relationship between perceived risk and online purchase intention. According to Mayer et al. (1995), consumers will enter a risky relationship with vendors if the consumers' level of trust exceeds the perceived risk threshold. In this sense, perceived risk is thought to be a predictor of trust (Hong & Cha, 2013) and past studies have evidenced that trust is a strong predictor of online purchase intention (Lowry et al., 2008; Maia et al., 2019). Besides, a recent study by Ilhamalimy and Ali (2021) has also found that trust has a mediating effect on the relationship between perceived risk and online purchase intention. Therefore, determining the potentialities and limits of online shopping requires a thorough understanding of trust (Clemons et al., 2016). Based on the discussion above, the following hypothesis is presented:

**H4:** Trust mediates the relationship between perceived risk and online purchase intention.

## **Moderating Role of Subjective Norms Between Perceived Risk and Online Purchase Intention**

Subjective norms or also known as social norms are a fundamental construct of the TPB and it refers to a type of social pressure on individual behaviour (Ajzen, 1991; Fishbein & Ajzen, 2011) that is primarily motivated by a need for approval (Comber & Thieme, 2013; Setiawan et al., 2021). In other words, subjective norms describe how a person feels about the social pressure to perform a certain behaviour (Boobalan et al., 2021), with the perceptions of what the most significant referent individuals or groups, particularly family and friends, regard as acceptable or unacceptable behaviour (Canova et al., 2020).

Many researchers have demonstrated that subjective norms positively affect consumers' online purchase intention (Alam et al., 2011; Sin et al., 2012). Besides, researchers have also investigated the moderating role of subjective norms (Kristanto & Pratama, 2020; Mohammadi, 2015). For example, Bhatti et al. (2020) examined the moderating role of subjective

norms between perceived risk and online shopping behaviour and their findings evidenced the moderating effect of subjective norms on privacy risk, convenience risk, and online shopping behaviour. Based on the discussion above, the following hypothesis is presented:

**H5:** Subjective norms moderate the relationship between perceived risk and online purchase intention.

## **METHODOLOGY**

### **Sample and Data Collection**

A survey was conducted among the respondents aged between 18 and 60 years old who lived in or around the Klang Valley area. Klang Valley was chosen because it is a large urban conglomeration centred on Kuala Lumpur and comprises nearby cities or towns in the state of Selangor. Thus, collecting data from the respondents in Klang Valley would provide more comprehensive coverage than focusing on a particular city or state. Convenience sampling was employed to conduct the survey in this study. Questionnaires are mostly used by researchers as a tool to collect data in order to select as many target respondents as possible. In this study, 300 questionnaires were distributed due to time and budget constraints; however, the researcher received a total of 250 usable questionnaires that were fully completed by the respondents and this yielded a response rate of 83%. As there were no missing data, all 250 questionnaires were utilised for statistical analysis.

### **Measurement of Variables**

This measurement scale for this study was derived from past studies in which the items have been well-recognised and validated by numerous scholars. To measure the respondents' responses, all items were measured based on a five-point Likert scale ranging from "1= strongly disagree" to "5= strongly agree."

## Analysis Method

The data obtained in this study was analysed using two reputable data analysis software, namely the IBM Statistical Package for Social Science (SPSS) version 23.0 and SmartPLS Version 3.3.3 for the Partial Least Squares Structural Equation Modeling (PLS-SEM).

## RESULTS AND DISCUSSION

### Descriptive Analysis

Table 1 summarises the demographic profile of the respondents. Based on Table 1, this study consisted of 143 (57.2%) male respondents with 107 (42.8%) female respondents. The respondents came from various age groups; however, the majority of the respondents belonged to the 26-30 years age group with 31.6%, followed by the age group of 18-25 years old with 26%. In terms of occupation, the respondents were mostly private-sector employees with 46.8% (117 respondents), followed by students with 31.2% (78 respondents) and government servants with 17% (42 respondents). In terms of monthly income, most of the respondents earned less than RM2,000 and more than RM6,000 per month, each with 27.6% (69 respondents), followed by RM2,000-RM4,000 per month with 24.0% (60 respondents).

**Table 1: Demographic Profile of Respondents**

	Frequency	Percentage (%)
<b><u>Gender</u></b>		
Male	143	57.2
Female	107	42.8
Total	250	100
<b><u>Age</u></b>		
18-25 years old	65	26.0
26-30 years old	79	31.6
31-35 years old	49	19.6
36-40 years old	24	9.6
41 years old and above	33	13.2
Total	250	100
<b><u>Occupation</u></b>		
Student	78	31.2
Government sector	42	16.8



Private sector	117	46.8
Self-employed	12	4.8
Unemployed	1	0.4
<b>Total</b>	<b>250</b>	<b>100</b>
<b><u>Monthly Income</u></b>		
Less than RM2,000	69	27.6
RM2,000-RM4,000	60	24.0
RM4,001-RM6,000	52	20.8
More than RM6,000	69	27.6
<b>Total</b>	<b>250</b>	<b>100</b>

## Measurement Model Evaluation

### *First-Order Reflective Measure*

The indicator loadings, Cronbach's alpha, composite reliability (CR) and average variance extracted (AVE) were assessed. The loading values of all items should be higher than the recommended value of 0.70 (Hair et al., 2017). As shown in Table 2, the composite reliability values of all variables were within the threshold range, all factor loadings in the present study were more than 0.70 and the AVE values also varied from 0.613 to 0.820, which were within the acceptable range. Therefore, this indicated no internal consistency issues in this study and the convergent validity criteria were met.

**Table 2: Evaluation of First-Order Reflective Measures (n = 250)**

Construct	Items	Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Financial Risk	FR1	0.904	0.785	0.870	0.692
	FR2	0.842			
	FR3	0.743			
Product Risk	PR1	0.846	0.851	0.910	0.772
	PR2	0.918			
	PR3	0.869			
Psychological Risk	PsyR1	0.758	0.706	0.825	0.613
	PsyR2	0.734			
	PsyR3	0.851			
Information Security Risk	ISR1	0.881	0.861	0.914	0.780
	ISR2	0.881			
	ISR3	0.886			
Delivery Risk	DR1	0.779	0.798	0.875	0.701

	DR2	0.836			
	DR3	0.892			
Subjective Norms	SN1	0.893	0.877	0.924	0.803
	SN2	0.906			
	SN3	0.888			
Trust	TRU1	0.865	0.871	0.921	0.795
	TRU2	0.895			
	TRU3	0.914			
Online Purchase Intention	OPI1	0.915	0.890	0.932	0.820
	OPI2	0.907			
	OPI3	0.894			

Next, discriminant validity was assessed using the Fornell-Larcker criterion. To indicate discriminant validity, the square root of average variance extracted (AVE) for each latent variable must be larger than the latent variable’s correlations. Based on Table 3, the square root of AVE for the first-order reflective constructs is on the diagonal; thus, discriminant validity was established.

**Table 3: Discriminant Validity Using Fornell-Larcker Criterion**

	DR	FR	ISR	OPI	PR	PsyR	SN	TRU
<b>DR</b>	<b>0.837</b>							
<b>FR</b>	0.496	<b>0.832</b>						
<b>ISR</b>	0.502	0.410	<b>0.883</b>					
<b>OPI</b>	-0.298	-0.155	-0.307	<b>0.905</b>				
<b>PR</b>	0.502	0.583	0.445	-0.212	<b>0.878</b>			
<b>PsyR</b>	0.614	0.506	0.551	-0.345	0.597	<b>0.783</b>		
<b>SN</b>	-0.290	-0.162	-0.252	0.484	-0.166	-0.330	<b>0.896</b>	
<b>TRU</b>	-0.297	-0.205	-0.215	0.641	-0.148	-0.303	0.455	<b>0.891</b>

*Note: FR = Financial Risk; PR = Product Risk; PsyR = Psychological Risk; ISR = Information Security Risk; DR = Delivery Risk; OPI = Online Purchase Intention; SN = Subjective Norms; TRU = Trust.*

**Second-Order Reflective Measure**

Perceived risk, which includes five dimensions such as financial risk, product risk, psychological risk, information security risk, and delivery risk was established as a hierarchical component model (HCM) in this study. Furthermore, a two-stage HCM analysis was also employed in the present study. Hence, the latent variable scores for lower-order components were indicated as manifest variables in the measurement model for higher-order components.

Additionally, the multicollinearity of lower-order constructs was also investigated in this study. Based on Table 4, all the lower-order constructs obtained VIF values of less than 5.0 (Hair et al., 2017) and 3.3 (Diamantopoulos & Siguaw 2006). This implied that the items were distinguishable and not correlated; hence, they achieved the criteria as formative measures. As such, collinearity in the higher-order construct did not attain the critical levels and, hence, was not an issue in PLS path model estimation.

**Table 4: Evaluation of Higher-Order Formative Model**

HOC	LOC	P Value	Outer Loading	VIF
Perceived Risk	FR	0.001	0.499	1.694
	PR	0.002	0.515	1.902
	PsyR	0.000	0.919	2.146
	ISR	0.000	0.744	1.566
	DR	0.000	0.799	1.829

Note: FR = Financial Risk; PR = Product Risk; PsyR = Psychological Risk; ISR = Information Security Risk; DR = Delivery Risk; LOC = Lower-Order Component, HOC = Higher-Order Component.

## Structural Model Evaluation

### *Hypothesis Testing*

This study had developed three direct hypotheses for the relationship between constructs. To assess the level of significance, the SmartPLS bootstrapping tool was used to produce t-statistics for all paths. Based on the path coefficients in Table 6, all three relationships were significant at the 0.05 level with a t-value  $\geq 1.645$ . Evidently, the predictor of perceived risk ( $\beta = -0.149$ ,  $p < 0.01$ ) was negatively related to online purchase intention and it explains 48.9% of the variance in online purchase intention; therefore, this result supported H1. Besides, the  $R^2$  value of 0.489 was also higher than Cohen's (1988) recommended value of 0.26, thus indicating a substantial model. Nonetheless, the predictor of perceived risk ( $\beta = -0.323$ ,  $p < 0.01$ ,  $R^2 = 0.104$ ) was negatively associated with trust and the predictor of trust ( $\beta = 0.501$ ,  $p < 0.01$ ) was positively related to online purchase intention; hence, H2 and H3 were supported in this study.

**Table 6: Hypothesis Testing for Direct Relationship**

Hypothesis	Relationship	Std Beta	Std Error	t-value	P-value	Decision	R <sup>2</sup>	f <sup>2</sup>	Q <sup>2</sup>
H <sub>1</sub>	PCR ->OPI	-0.149	0.063	2.362	0.009	Supported	0.489	0.037	0.382
H <sub>2</sub>	PCR->TRU	-0.323	0.077	4.207	0.000	Supported	0.104	0.116	0.072
H <sub>3</sub>	TRU->OPI	0.501	0.064	7.818	0.000	Supported		0.364	

Note: PCR = Perceived Risk; OPI = Online Purchase Intention; TRU = Trust; R<sup>2</sup> = Coefficient of Determination; f<sup>2</sup> = Effect size to R<sup>2</sup>; Q<sup>2</sup> = Predictive Relevance.

## Mediation Analysis Evaluation

Mediation analysis was conducted on trust as a mediator in the relationship between perceived risk and online purchase intention. After undergoing bootstrapping analysis, the results as in Table 7 demonstrated the significance of the indirect effect ( $\beta = -0.160$ ) with a t-value of 3.656 ( $p < 0.01$ ). The confidence interval of 95% for the indirect effect of bias-corrected bootstrap [LL = -0.249, UL = -0.093] also did not straddle a 0 in between, which indicated a mediating effect (Preacher & Hayes, 2008). As the mediation was statistically significant, Hypothesis 4 was, therefore, supported in this study.

**Table 7: Hypothesis Testing for Mediation**

Hypothesis	Relationship	Std Beta	Std Error	t-value	p-value	Confidence Interval		Decision
						LL	UL	
H <sub>4</sub>	PCR ->TRU >OPI	-0.160	0.044	3.656	0.000	-0.249	-0.093	Supported

Note: PCR = Perceived Risk; OPI = Online Purchase Intention; TRU = Trust; BC = Bias Corrected; LL = Lower Limit; UL = Upper Limit.

## Moderation Analysis Evaluation

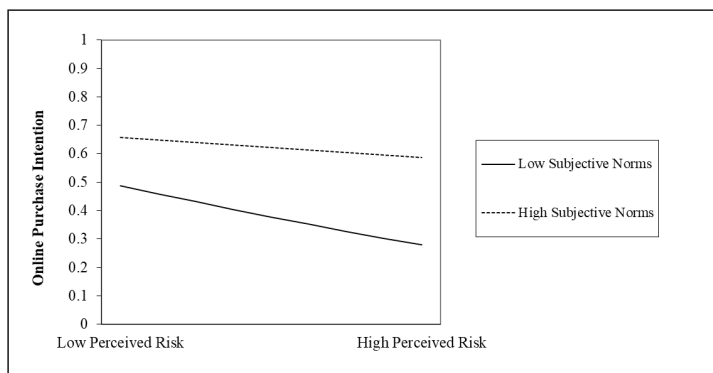
Finally, moderation analysis was conducted to examine subjective norms and their moderating effect on the relationship between perceived risk and online purchase intention using a two-stage approach. The results as in Table 8 showed the existence of a statistically significant moderation effect. Subsequently, the moderating effect plot was used to examine the nature of the relationship (see Figure 2). Based on the steepness of the slope, the negative relationship between perceived risk and online purchase intention was the largest in magnitude among online consumers, which was characterised by low subjective norms. Hence, the effects of perceived risk

in reducing the online purchase intention were higher with low subjective norms.

**Table 8: Hypothesis Testing for Moderation**

Hypothesis	Relationship	Std Beta	Std Error	t-value	p-value	Decision
H <sub>5</sub>	PCR*SN ->OPI	0.114	0.055	2.089	0.037	Supported

Note: PCR = Perceived Risk; OPI = Online Purchase Intention; SN = Subjective Norms.



**Figure 2: Simple Slope Analysis on the Moderating Effect**

## Discussion

Drawing from the research question and first research objective to investigate the effects of perceived risk on online purchase intention among Malaysians, the present study assessed the relationship of perceived risk with online purchase intention. The findings showed that Hypothesis 1 was supported in this study; hence, perceived risk had a negative relationship with online purchase intention. This finding also coincided with a study by Akhlaq and Ahmed (2015), which reported that consumers' online purchase intention might be inhibited when they learn that the transaction is dangerous. Some studies also have discovered the negative effects of perceived risk on online purchase intention (Singh & Srivastava, 2018; Tarawneh et al., 2021).

According to Corritore et al. (2003), if consumers feel that the products or services offered by online vendors are excessively risky, the consumers are highly unlikely to trust the vendors. In line with numerous studies that discovered the negative effects of perceived risk on trust (Joko Wijoseno

& Ariyanti, 2017; Le & Hoang, 2020), the present study also found that perceived risk and its negative effects on trust are relevant in online shopping. Therefore, the findings supported Hypothesis 2 in this study.

The findings have shown that Hypothesis 3 is supported in this study, thus demonstrating a positive effect of trust on online purchase intention and supporting Qalati et al. (2021) who reported the same outcome. As consumers' trust in online vendors or online shopping websites increases, their intention to purchase online may also increase. This can further be justified from Lin et al.'s (2018) study in China on social commerce adoption, which found that Chinese consumers tend to purchase through social commerce with a high level of trust. The concerns related to sharing information or experiences are no longer a barrier when these consumers begin to trust the parties involved in social commerce. As a result, they become more willing to purchase through such a medium.

This study discovered that trust has a significant mediating effect on the relationship between perceived risk and online purchase intention ( $p = 0.000$ ), which is consistent with the finding reported by Ilhamalimy and Ali (2021) in the context of online purchase intention in Shopee. Therefore, if consumers trust the online vendors or websites, it is less likely that they will experience negative outcomes but are more likely to purchase online.

Even though many researchers have used subjective norms as a moderator, the moderating role of subjective norms in the context of online shopping has been scarcely examined in past studies. However, the present study found that subjective norms moderated the relationship between perceived risk and online purchase intention, which coincides with Bhatti et al.'s (2020) finding on the significant moderating effect of subjective norms on the relationship between perceived risk and online shopping behaviour. The results of this study revealed that there is a significant, but negative moderating effect of subjective norm on the relationship between perceived risk and online purchase intention which implies the impact of perceived risk on online purchase intention is higher if the subjective norms is lower. From this study, we can infer that without the approval of the referents, consumers will not make online purchases in order to avoid risks and uncertainty associated with the behaviour.

## **CONCLUSION AND RECOMMENDATIONS**

There are several theoretical implications in this study. Firstly, the current study contributes to the research field by offering valuable information on the theoretical relationships between perceived risk, trust, subjective norms, and online purchase intention. Secondly, this study has highlighted trust as a crucial factor that affects online purchase intention because trust positively affects consumers' online purchase intention. Finally, since subjective norms were used to determine its moderating effect on the relationship between perceived risk and online purchase intention, the findings have shown that subjective norms indeed moderated this relationship.

The findings of this study provide several practical implications based on in-depth information regarding consumers' online purchase intention. As consumers in emerging markets become more aware of the benefits of online purchasing, online vendors must, hence, focus on reducing consumers' risk perception and continue providing a risk-free online shopping experience and payment processing. To reduce consumers' negative perception of online purchase activities, the government or public policymakers can focus their efforts on improving security and data privacy legislation to maximise the benefits of online purchasing.

This study has several limitations that incite suggestions for future research. Firstly, due to time constraints, the researcher only managed to collect data from 250 respondents; however, the total number of respondents in this study is insufficient to represent the whole population of Malaysian consumers. Hence, future researchers could collect a larger sample to cover the larger portion of the population and yield more reliable results. Besides, this study utilised convenience sampling that comes with several limitations, for instance, limited generalisability and sampling bias that must be taken into account in future studies. A probability sampling technique could be applied to ensure that everyone has the same opportunity to be chosen as respondents and improve the generalisability of the results.

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