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## Perceived Risk Factors Affecting Consumers' Online Shopping Behaviour\*

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### Abstract

The study examines the impact of financial risk, convenience risk, non-delivery risk; return policy risk and product risk on online consumer behavior of Malaysian consumers. The research employed a self-administered survey to collect empirical data from 245 Malaysian online shoppers by using convenience sampling. Cronbach alpha was calculated to confirm the reliability of the data and then normality was assessed. Confirmatory Factor Analysis was then conducted to test the model using the goodness-of-fit tests. And finally, structural equation modeling is used to test the hypotheses and draw conclusions. IBM SPSS AMOS version 22.0 was utilized for data analysis. The research indicates that product risk, convenience risk, and return policy risk have a significant and positive impact on online shopping behavior. Financial risk is found to have insignificant and negative effects on consumer behavior. In addition, the non-delivery risk is found to have a significant and negative impact on online shopping behavior. The findings provide a useful model for measuring and managing perceived risk in online shopping which may result in an increase in participation of Malaysian consumers and reduce their cognitive deficiencies in the e-commerce environment. Several managerial implications are discussed along with the scope for future research.

**Keywords :** Perceived Risk, Online Shopping Behaviour, Malaysian Consumer, E-Commerce

**JEL Classification Code :** M31, L86

### 1. Introduction

The Internet is a common, collaborative and self-sufficient setup that can be used by millions of people around the world. The advancement of Internet technology has made the growth of online shopping beyond legacy methods. Thus, the assurance of secure transactions is

important and must be accommodated by the new technological advancement. In Malaysia, ever since the first Internet Service Provider (ISP) JARING launched in 1990, and later the TMNET in 1996, the usage of the Internet has been growing with steady, up to today. From the provided data for Malaysia between year 1990 and 2017 by World Bank, the average value of Malaysia internet users within this period was 36.36%, the lowest in 1990 was 0%, and the highest in 2017 was 80.14%. While in quarter three of year 2017, penetration rate of Malaysia's mobile phone have reached 131.8%, compare to penetration rate for smartphone reached 70%, and, Malaysia's broadband penetration rate reached to 84.5% as stated in the "3Q 2017 Communications and Multimedia: Facts and Figures" report, it has been shown that in the region, Malaysia have emerged as e-commerce markets at the rapid growth rate (TheStarOnline, 2018).

Although the prospects for growth in e-commerce in Malaysia are very promising, it is important to manage consumer perceived risk to allow more buyers to attract online shopping (Goi, 2016). Therefore, consumers' online shopping behavior ought to study based on the attitude and perceived risk, as this will result in more Malaysians trading

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online, which will have a major influence on the e-commerce development in Malaysia. In the marketing literature, it is realized that risk perception directly affects purchase and purchase intent, that is, when consumers perceive high risks, consumers are less likely to purchase or buy back online. Obviously, the risk may be real, as long as it is perceived; it will influence the consumer's buying behavior. Thus, the study must constantly check the consumer's perceived risk of online shopping to monitor their degree of impact on consumers' online attitudes and shopping behavior and to avoid disharmony after they execute purchases (Hassan, Kunz, Pearson, & Mohamed, 2006). Therefore, the perceived risk of consumers should be continuously researched so that they can be actively managed and decrease the perceived risk of consumers, thus helping to increase in online shopping.

Therefore, the purpose of this study is: To investigate the effect of financial risk as a factor influencing consumers' online shopping behavior and purchasing decisions in Malaysia. To investigate the effect of product risk as a factor influencing consumers' online shopping behavior and purchasing decisions in Malaysia. To investigate the effect of convenience risk as a factor influencing consumers' online shopping behaviors and purchasing decisions in Malaysia. To investigate the effect of non-delivery risk as a factor influencing consumers' online shopping behaviors and purchasing decisions in Malaysia. To investigate the effect of return policy risk as a factor influencing consumers' online shopping behaviors and purchasing decisions in Malaysia.

## 2. Literature Review

**Consumer Online Shopping Behaviour:** The course of online purchasing of goods or services through e-commerce platforms can be referred to online shopping behavior. This is a five-step process and is analogous to shopping characteristics in conventional approaches (Liang & Lai, 2000). A study conducted by Shranck, Huang, and Dubinsky (2006) indicates that people who shop online are less technically at risk compared to those who shop directly. The reliability of online resources relies on the receipt of orders, timely response and delivery on time; as well as the security of customer personal information (Janda, Trocchia, & Gwinner, 2002; Kim, Lee, Han, & Lee, 2002; Parasuraman, Zeithaml, & Berry, 1988). Online shopping involves users online to search, select, purchase, use and process goods and services to meet his or her needs. Individuals encounter a lot of risks when visit and performing online purchases. As a matter of fact, consumers experience high risks when shopping through the Internet compared to traditional retail transactions (Lee & Tan 2003).

**Perceived Risks:** The amount of risk perceived by the consumer is a function of two main factors, namely, the amount at stake in the purchase decision, and the

individual's feeling of subjective certainty that he/she will "win" or "lose" all or some of the amount at stake (Cox & Rich, 1964). It is also defined as the uncertainty of bad outcome that consumers may make when making purchasing decisions (Naovarat & Juntongjin, 2015; Tsiakis, 2012), and, possibility of being dissatisfied when purchasing a product compared to the buyer's goal (Zheng, Favier, Huang, & Coat, 2012). Perceived risk is a measurement of unanticipated disaffection and disappointment with purchase decisions based on the purchase target, and hence it is a strong pointer of consumer behavior because consumers are more likely to lessen possible failures rather than seek the purchase accomplishment (Donni, Dastane, Haba, and Selvaraj, 2018). In general, active online shopping behavior will result in the success of e-commerce transactions (Safie, Dastane, & Ma'arif, 2019). There are several factors of perceived risk when it comes to online shopping.

**Financial Risk:** Consumers might be worried regarding online safety and security in the use of their credit cards and disclosure of personal information. Therefore, although if customers make an order online, most customers prefer other payment methods, for example, cash on delivery, online/offline banking transfer and third party secured payment method, like PayPal, rather than using credit cards. Previous research has revealed that one of the most instances worries when buying online is fear of credit card deception (Adnan, 2014; Abrar, Naveed, & Ramay, 2017; Saprikis, Chouliara, & Vlachopoulou, 2010). Financial risk plays an important role for those who choose to shop online whether to or not to go with the purchase. This is due to financial risks raised a threat, leading to undesirable opinions and affecting consumer behavior (Barnes, Bauer, Neumann, & Huber, 2007; Haider & Nasir, 2016). Bitner and Zeithaml (2003) assume that financial risk often occurs in the first phase of online shopping; right after the customer makes an online order.

**H1:** Financial risk has a negative significant impact on consumers' online shopping behavior.

**Product Risk:** Product risk relates to the performance or quality of goods and services that consumers choose through online shopping. Alreck and Settle (2002) stated product risk includes a series of categories among various customers. Crespo, Bosque and Salmones Sánchez (2009) assumed that financial loss also as part of product risks, as product risks also cause consumers to believe that there may be fraudulent activities which may result in the loss of their money due to the Internet. Product risk outlined as the discrepancy between the product risk obtained and the predicted risk in illustration of the product. The description and the display of the product quality led to the cause of product risk, which remarkably affects the consumer's capability to comprehend the product. Inability to examine the product, inadequate product information display might raise consumer anxiety (Dastane, Jalal, & Selvaraj, 2018; Wong, Dastane, Safie, & Ma'arif, 2019). The product problems are more towards

those goods that do not have after-sales service. Product risk is usually regarding purchasing merchandise that may not function as initially anticipated (Kim 2010). Some studies indicate that there is a product or performance risk in the online environment or concerns that products are not functioning properly or performing poorly, are increasing (Cunningham, Gerlach, Harper, & Young, 2005; Hsin & Wen, 2008; Yeniçeri & Akin, 2013). In brief, the impossible to touch, inspect or try prior purchasing a product, which is also a key concern when buying online, and these concerns raise in product or performance risk (Saprikis et al., 2010).

**H2:** Product risk has a negative significant impact on consumers' online shopping behavior.

**Convenience Risk:** Various online stores and richly variety products online (Forsythe, Liu, Shannon, & Gardner, 2006). It is sometimes uneasy for consumers to search for the correct product that can generate a lot of fear. If the customer cannot wait until the goods and services arrive, the customer usually feels what will happen. They also believe that there is a risk of controversy and they will unable to submit if the products or services received not fulfill the criteria. The lack of trust in online shopping judgments is veto in some cases where switching programs occur. This may be due to online shopping delays in accepting products (Liu et al., 2006). Convenience risk is described as disappointment from online shopping. The simplicity of the shopping process can impact consumers' perception of the degree of convenience risk (Jarvenpa & Tractinsky, 1999; Kim, 2010; Kim, Ferrin, & Rao, 2008). Besides, convenience risk can also refer to the risk perception of consumers who need to spend substantial times and the efforts to fix and fine-tune the purchased product prior to its usage (Chang & Chen, 2008; Lee & Tan, 2003). When the customer's perception feels that the convenient is risky, they perceived that execute several online purchases is quite knotty for them.

**H3:** Convenience risk has a positive significant impact on consumers' online shopping behavior.

**Non-Delivery Risk:** While this is an unusual situation, online shoppers are often concerned that they will not receive the product after purchase. Loss or damage to the goods is related to potential delivery losses and causes customers to worry that their goods cannot be received on time. A variety of factors may impact whether the goods are received by the customer, for example like improper deal with the goods while in the process of delivery. By furnishing with correct updates on the shipment status, consumers should look forward to the arrival schedule of the product, allowing customers to reduce their thoughts on transportation and undeliverable (Masoud, 2013). In the wrong place, the goods are also mistakenly transferred to the wrong individual. According to Dan and Kim (2007), they indicated the non-delivery risk as a failure that could result

in the loss of the goods, the damage to the goods and being shipped to incorrect place after confirming the order. While according to Naiyi (2004), delivery processes are the concerns to consumers, for example, the product damages may occur during shipment, delivered to an incorrect address, or in certain situations, it is prolonged. Worry about items may be harmed during the delivery process. Its packaging may not be suitable for it (Claudia, 2012; Masoud, 2013). Therefore, when customers decide to purchase products online, the risk of non-delivering is one of the biggest concerns.

**H4:** Non-Delivery risk has a negative significant impact on consumers' online shopping behavior.

**Return Policy Risk:** The exchange of return policies implies that the easiest way to trade is to ensure that buyers are unconditionally committed. This is to assure them that if they are not satisfied with the items they buy, they can give back their items without difficulty. A positive impact is where customers are dissatisfied with the products they request; they can give back to the seller. The negative result is that when they need to get back the item, the entire process may leave a long chance to complete. The simplicity to return product always is one of the interest factor for online shoppers (Teo, 2002). The concerns associated to return policy include the result of product replacement policy, the product return grace period and the transport expenses on product return to the online merchants. The simplest approach to process products online is to guarantee a "cash return guarantee". This policy has a significant or opposite impact on the customer's choices. On the positive side of this approach, is the buyers can do the shopping without worry, and protected by return policy without fear, and provided the chance for buyers to return the product if it does not fulfill the demands. Conversely, the drawback side is, the return process might take longer time to process or involve minor costs on return items (Haider & Nasir, 2016). According to Foscht, Ernstreiter, Maloles, Sinha, and Swoboda (2013), when customers are less helpless and the things in a particular online store are typical for them, they basically return less, they will coordinate more things, and this will definitely get itself brings more benefits.

**H5:** Return Policy risk has a positive significant impact on consumers' online shopping behavior

The perceived risk of experience is higher, and consumers might shift to traditional physical retailers to acquire products. Yet, the lesser the perceived risk, the trend of online shopping is higher (Tan, 1999). This may be because consumers are afraid of risks when shopping online. Because of the high level of risk in online shopping, consumers must consider the risks that may occur during the purchase process (Adnan, 2014). The figure 1 depicts the conceptual framework for the current study. Although there are several researches in the past focussing on the factors of

perceived risk in the context of online shopping, this study selects factors which are suitable for Malaysian setting. This selection is done after careful review of the related researches carried out for Malaysian consumers. The factors with strong impacts are selected to further analyze. It can be said that online shopping is well adopted in Malaysia, the warrants need to re-investigate the impact of such selected risk factors. Thus the independent variables are financial risk, product risk, convenience risk, non-delivery risk, and return policy risk.



Figure 1: Conceptual Framework

### 3. Research Methodology

By understanding the nature of the study, positivism is the favorable research paradigm for conducting quantitative research, above the interpretive, transformative, and critical. This research has conducted a cross-sectional explanatory study via a self-administered questionnaire because the model attempts to relate thoughts to perceived causality. Data Collection Method: For this study, the researchers used a self-administered questionnaire with a seven-point Likert scale to collect respondents' perceptions of risk factors affecting the online shopping behavior of Malaysian consumers. Population & Sample: To achieve the purpose of this research, and avoid unprejudiced data, this study is targeted the right sample, that is, customers with online shopping experience in Malaysia.

In this study, data is collected based on convenience from online shopping consumers in Malaysia, mainly shoppers who make online purchases from local and international online marketplaces that have operations to serve the Malaysian market. The data collection period is from January 2019 to April 2019. The questionnaire designed in divided into two parts and for the data collection from participants. However, in order to facilitate quality data collection, the questionnaire was made understandable using English as a language, and description of survey statement supplement in Mandarin for target respondent who not understand the objective and the meaning of the research

survey. The sample size for this study targeted at 300 respondents through a convenient sampling method using non-probability sampling techniques.

Data Collection Instrument: Use of structured questionnaires is done to collect the necessary data. The structured questionnaire with short questions was prepared and respondents were asked to choose an answer from a given list of responses. The questionnaire consists of 15 different parts, divided into two sections. The first section is on factors assessment, each of which contains five questions related to different parts of the study, and, second section is on demographics of respondents. Given the time and cost constraints and the large number of Internet users in the country, convenience sampling is used to collect data on current Internet users in Klang Valley and Penang, which are the most concentrated places for Internet users. Although the sampling method used has limitations in terms of universality compared to other sampling methods, it is assumed that the sample represents the entire Internet user community in Malaysia. The survey was conducted through Google's online survey form, which is then distributed via social messaging groups, such as the WhatsApps Group, and posted on social media, such as Facebook in relevant communities.

The questionnaire starts with demographic and few warm-up questions on: Gender; Age; Race; Education Qualification; Marital Status; Occupation; Income Range; Online Shopping Experience - Year; and Frequency of Shopping Online. In this study, perceived risk is an independent variable and online shopping behavior is the dependent variable. A total of 30 items were generated, including of the five questions for each of the variable: FI (5), PR (5), CR (5), NDR (5), RP (5) and CB (5), together with the nine demographics questions (Table 1). In order to develop a questionnaire, the researcher used straightforward and clear wording, making it easy for each survey to understand and answer questions from the respondents. In multivariate studies, the required sample size should be 5 to 10 times the variable, 10% and 5% marginal error (Hair, Anderson, Tatham, & Black, 1998). In this study, the total number of questions was 30, so at least 300 questionnaires were required to obtain a 5% margin error, and 100 questionnaires were required to obtain a 10% margin error. In 300 questionnaires, 245 respondents were completed and useful questionnaires were collected. Each response received is filtered against errors, incomplete or missing responses. The final sample size of 245 surveys was used, which did not have missing information for data analysis (Table 1).

**Table 1:** Questionnaires Development

Variables	Factors
Financial Risk (FR)	FR1) Credibility of online portal FR2) Credit card security issues FR3) Overcharging FR4) Personal information privacy FR5) Transaction security
Product Risk (PR)	PR1) Product features as promised PR2) Damaged product PR3) Product quality PR4) Accuracy of product description PR5) Product authentication
Convenience Risk (CR)	CR1) Online shopping in-convenience CR2) Product search in-convenience CR3) Order cancellation in-convenience CR4) Product returning in-convenience CR5) Settling disputes
Non-Delivery Risk (NDR)	NDR1) Product undeliverable NDR2) Reliability of shipper NDR3) Delivery status updates NDR4) Missing delivery NDR5) Delivery options
Return Policy Risk (RPR)	RPR1) Acceptance for returns RPR2) Free return shipment service RPR3) Money back guarantee RPR4) Clearly stated return policy RPR5) Quick claims clearance
Online Shopping Behavior (OSB)	OSB1) Impact of financial risk OSB2) Impact of product risk OSB3) Impact of convenience risk OSB4) Impact of delivery risk OSB5) Impact of return policy

**Data Analysis Plan:** The collected data is automatically saved in a Google spreadsheet and finally exported to cross-examine by using Social Science Statistics Package (SPSS) application for analysis. IBM SPSS AMOS version 22.0 was selected for statistical analysis of this study. Researchers normally make use of Cronbach's Alpha to evaluate the reliability factor of the conformity of the entire scale. KMO and Bartlett's sampling sufficiency tests and Bartlett's Sphericity tests were executed to affirm the applicability of the data in factor analysis. Descriptive statistics is used to describe the fundamental features of the data in research. AMOS 22 is used to measure the validity of the questionnaire and uses a confirmatory factor analysis (CFA) to inspect the correlation among independent and dependent variables, as well as the convergent validity and discriminant validity tests to check the validity of the construct to ensure that model adaptability. Correlation analysis is used to examine the common connections of each variable item to assess the strength or extent associated with two or more variables (Dalggaard, 2008). Structural Equation Modeling was then executed. Regression analysis is a conceptual approach to studying the functional relationships between variables (Chatterjee & Hadi, 2015).

## 4. Analysis and Findings

### 4.1. Demographics Analysis

A total of 300 questionnaires were distributed to online shoppers in Malaysia, with only 245 valid and reliable respondents replied, which equivalent to a total of 81.67% data collected. From the 245 respondents, 49.4% are female and 50.6% are male, this can show that the online shopper in Malaysia are quite balance in term of online shopping. While on the age group, 38% of respondents are in between 31 and 40, compared to 29.8% from age between 18 to 30, and 32.8% from age at 41 and above; this can be interpreted as age group at the highest percentage might be the working adults with better income and less commitment, but busy with their schedule, thus, encouraging them to purchase more products online, however, it also shows that purchasing power is not limited by age.

From the survey, most of the responses were received from Chinese at 73.5%, followed by Malay at 13.5%, and less responds from Indian, which is only 9%. In terms of education level, the respondents mostly are having Bachelor's degree, representing 59.2%, while the diploma and master's or doctorate degree holders are at 16.3% and 13.5% respectively. Meanwhile, 53.9% of respondents are married and 44.9% are still single. On the employment status survey, 68.2% are employed personal, while 18.8% are still college or university students. 40.8% of respondents are from the higher monthly income group, compare to others, which are 24.1% are within RM2,499, 19.6% within RM4,999 and 15.5% within RM7,499. Most of the respondents are having experience in online shopping between 1 to 3 years, representing 31.4%, while 27.8% of respondents already doing online shopping 3 to 5 years and 23.3% of respondents have done online shopping for more than 5 years. From the 245 respondents, 41% are only shopping online every once in a while, and, 29.4% will do online shopping once in a month, the remaining which doing online shopping twice a month and more than twice a month are at 14.7% for both.

### 4.2. Reliability Analysis

In the Table 2 result, the summation of all the six variables' scale, it shows all the six variables are getting good scores with the results are at the range between 0.806 and 0.942. It is considered highly reliable, and valid for this research, where they are fulfilling the rule of thumb for good and excellent rating, high reliable alpha value of > 0.70 (Glen, 2014). From the reliability test result, which shows in this research, it can be concluded that it is an appropriate, sufficient and acceptable score; therefore, the analysis is trustworthy and rightful to use.

**Table 2:** Reliability Test

Variables	Number of Items	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items
FR	5	.806	.810
PR	5	.881	.882
CR	5	.876	.880
NDR	5	.873	.875
RPR	5	.942	.942
OSB	5	.916	.923

### 4.3. Factor Analysis

Exploratory Factor Analysis: Analysis results show that KMO value 0.939 represent very strong sample sufficiency, which rated as “Marvellous” in the fundamental guideline by Kaiser (1970). This result confirms the null hypothesis of no correlation. According to the chi-square statistic, no sampling error occurred. This test demonstrates that the variables are really interrelated to each other in this study, and is suitable for further advancement to run meaningful factor analysis.

Communalities: Based on the results, as a whole, all variables are firmed and reliable factors, with all values, exceeded 0.40, recorded at range between 0.512 to 0.858. When the commonality of the variables is high, the extracted factors account for a huge amount of the variance of the variables, meaning that the specific variables reflect well, so the factor analysis is reliable (Field, 2000).

EIGEN Values: For the purposes of analysis and interpretation, the researcher only focuses on the extraction sum of squared loadings. With the general rule of thumb of Eigenvalue on selection of component with Eigenvalue at least 1, out of the 30 questions from the 6 variables, it seems that only the first 5 underlying or “meaningful” factors are to be measured, because their Eigenvalue is at least 1 and above. Other remaining components with low-quality scores, which is Eigenvalue less than 1 are not considered to represent the true characteristics of the 30 questions. These components are considering “fragments”. It should be noted here that the first factor accounts for 44.734% of the variance, the second factor accounts for 11.411%, then 5.273% of the third factor, followed by the fourth-factor accounts for 4.092%, and the fifth factor accounts for 3.592%. The accumulation percentage of 69.102% by these five factors mean for about almost 70%, more than half of the variance is accounted for by the first five factors. All the remaining factors are not important.

Descriptive Statistics: The whole data has a normal distribution with outstanding skewness value between -1.0 and +1.0, and most have an almost symmetric data distribution. If the skewness of the normality test and the value of the kurtosis between -1.0 and +1.0 are considered excellent, the variable is rationally near to normal, and the deviation value falls outer of the range to show a significantly skewed distribution (Hair, Black, Babin, Anderson, & Tatham, 2006). The kurtosis statistics in this

study showed generally satisfactory normal distribution, except for 7 of the 30 variables: CR1, RPR1 to RPR5 and OSB4 falling outside the range of scores between -1.0 and +1.0. Although Kurtosis does not evaluate a small number of variables, it is considered acceptable that the skewness of all variables is symmetric. To demonstrate normal univariate distribution, skew and kurtosis scores between -2.0 and +2.0 are considered acceptable.

However, Hair, Black, Babin, and Anderson (2010) and Bryne (2010) argue that if Skewness is between -2 and +2 and Kurtosis is between -7 and +7, then the data is considered normal. In addition, in the Kline (2011) study, the skewness and kurtosis index were mentioned to identify the normality of the data. The outcomes show that with the skewness and kurtosis index below 3 and 10, respectively, the data deviation from normality is not serious. According to descriptive statistical analysis for the five variables of perceived risks factors that affecting online shopping behavior, the most influential factor is the Return Policy Risk, with an average value of 5.78 and a standard deviation of 1.213. This is followed by Non-Delivered Risk (5.48), Convenience Risk (5.37), Financial Risk (4.94) and Product Risk (4.62) based on the average value in the table. Ultimately, the average value of Online Shopping Behavior is 5.78.

### 4.4. Confirmatory Factor Analysis

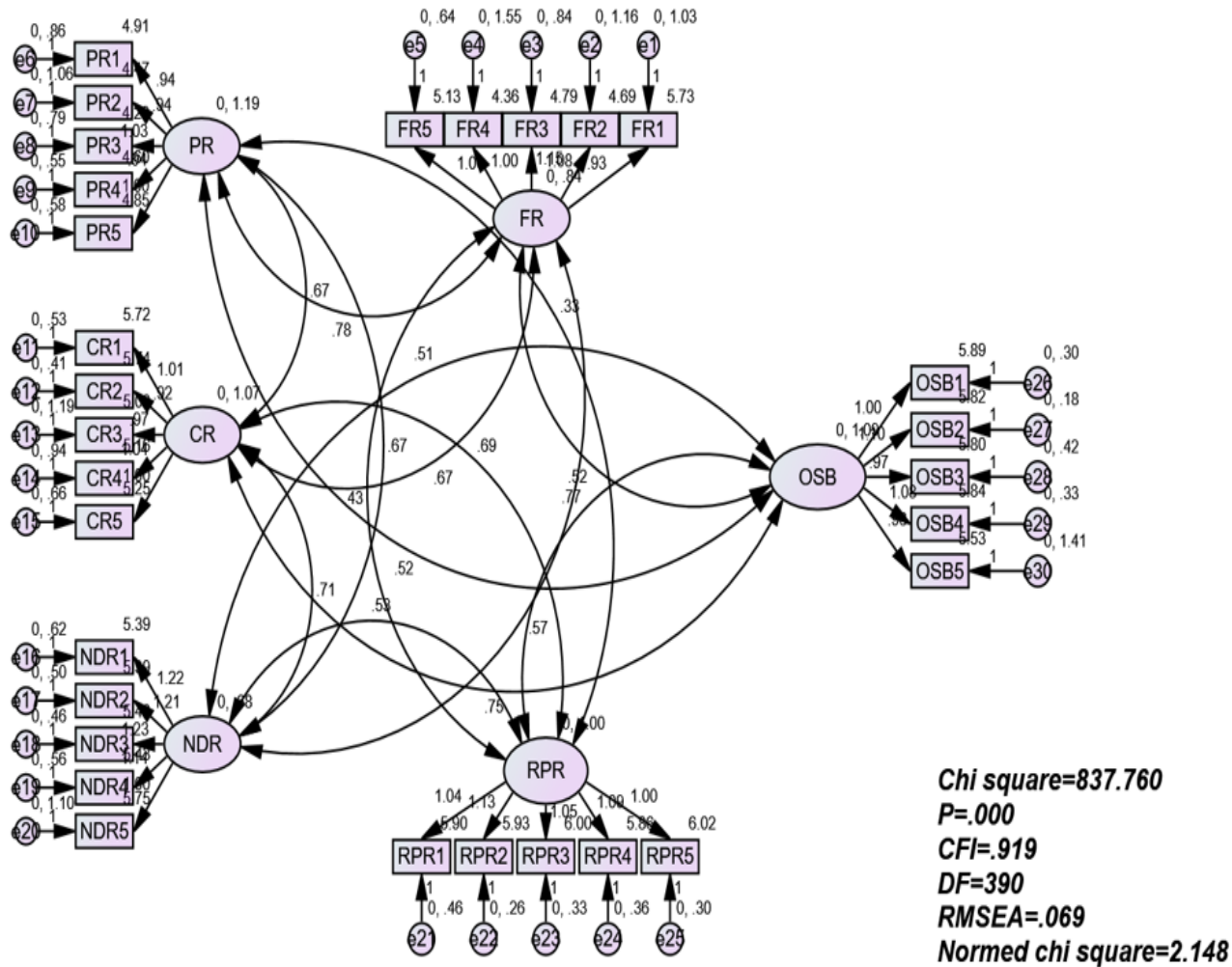
In Table 3, the CFA results are summarized based on the acceptance levels of the corresponding tests. The chi-squared results of 0.000 indicate statistically significant estimates of the overall model fit for this research (Barrett, 2007). Meanwhile, the RMSEA result of 0.069 shows that the model of the research is a good fit, the confidence interval around the value can be calculated, and the null hypothesis (bad fit) can be tested more accurately (McQuitty, 2004). The Normed Chi-Square result of 2.148, which fulfill the rule of thumb value < 3.0, shows an acceptable fit between the collected sample data and a hypothetical model (Kline, 2011). On the Comparative Fit Index (CFI) result of 0.919, the statistical range is between 0.0 and 1.0, and a value close to 1.0 indicates a good fit (Hooper, Coughlan, & Mullen, 2008). Whereby according to Bentler and Bonnet (1980), the value indicates the good fit, and meet the rule of thumb value > 0.90 based cut-off standard recommendation, while keep CFI > 0.80 as the minimal condition for an acceptable cutoff value. Since there is no variable to eliminate out from the total 30 variables, they now describe the overall variance and importance to be counted in the model, to well examine the results of Malaysian online shopping behavior (Figure 2).

**Table 3:** Confirmatory Factor Analysis (CFA) Result

Indices Category	Index Initial	Cut-Off Threshold	CFA Result
Absolute Fit	Chisq	P < 0.05	0.000
	RMSEA	≤ 0.08	0.069
Incremental Fit	CFI	> 0.90	0.919
Parsimony Fit	Chisq/DF	< 3.0	2.148

Convergent Validity Measurement: The measurement model's factor loading for entirely 30 perceived variables is now > 0.5, and significant at  $p < 0.05$ , presenting that

entirely items have acceptable level of convergence validity when interpreting theoretical constructs. (Hair et al., 2006). In addition, based on the data in the table, all constructs in this study support convergence validity because the average variance extraction (AVE) for all potential constructs is between 0.683 and 0.876, which are larger than the advocated value of .5 (Hair et al., 2010). The reliability of these variables once again tested using Cronbach's Alpha, the results showed that the variables ranged from 0.806 to 0.942 for all six variables, indicating high reliability with an empirical value > 0.70 (Kline, 2011).



**Figure 2:** Confirmatory Factor Analysis

Discriminant Validity Measurement: After completing the CFA process for the fresh assessment model with all affirmative factor loads and the fitness index reached the desired level, the validity, and reliability of the hypotheses in Table 6 are generated and generalized by discriminant validity process. The discriminant validity measures of this

study show that neither methods point to the discriminant validity problem at the level of mutual correlation between the two constructs. Therefore, the discriminant validity is supported, which indicates the correlation matrix of the construct in this study. This is because all square root values are greater than the correlation coefficients. The correlation

between all measured constructs is less than 0.90, which has very strong reliability and validity within the HTMT rule of thumb threshold for further study of model correlation measurements (Kline, 2011). Among the correlation coefficients, the results show that all hypotheses are below the threshold <1.00, as proposed by Hair et al. (2010), the highest realized value is 0.549, indicating that all structures are valid and acceptable. An HTMT value close to 1 or above a predefined threshold is considered to be a lack of discriminant validity, and the two constructs overlap very heavily, and the same thing in similar possibly measured (Hamid, Sami, & Sidek, 2017).

#### 4.5. Correlation Analysis

Table 4 shows a correlation analysis based on Pearson Correlation(r), which shows the degree of association among

independent and dependent variables. Based on the result shown, the correlation coefficient (r) of each variable is as follows: (FR r = .465 mean Strong positive relationship; PR r = .392 mean Moderate positive relationship; CR r = .580 mean Strong positive relationship; NDR r = .562 mean Strong positive relationship; RPR r = .690 mean Strong positive relationship). On top of the significant value of 0.000 for all variables, the affiliation among the five variables and online shopping behavior is significant. The correlation coefficient of all variables is between the minimum value of +0.392 and the maximum value of +0.690, indicating that the strong point of the affiliation among the independent variable and the dependent variable is from moderate to strong, demonstrating the variables that perceive risk have a positive and significant relationship with online shopping behavior.

**Table 4:** Correlations Analysis

		Financial Risk	Product Risk	Convenience Risk	Non-Delivery Risk	Return Policy Risk	Online Shopping Behavior
<b>Financial Risk</b>	Pearson Correlation	1	.674**	.595**	.650**	.418**	.465**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	245	245	245	245	245	245
<b>Product Risk</b>	Pearson Correlation	.674**	1	.516**	.640**	.281**	.392**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	245	245	245	245	245	245
<b>Convenience Risk</b>	Pearson Correlation	.595**	.516**	1	.758**	.608**	.580**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	245	245	245	245	245	245
<b>Non-Delivery Risk</b>	Pearson Correlation	.650**	.640**	.758**	1	.618**	.562**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	245	245	245	245	245	245
<b>Return Policy Risk</b>	Pearson Correlation	.418**	.281**	.608**	.618**	1	.690**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	245	245	245	245	245	245
<b>Online Shopping Behavior</b>	Pearson Correlation	.465**	.392**	.580**	.562**	.690**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	245	245	245	245	245	245

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

#### 4.6. Structural Equation Modelling

Figure 3 is developed with AMOS version 22 for the model testing and calculation of the structural model. The model is deemed to be in the acceptable range of goodness-of-fit with the model fit. The following results of CMIN/DF value  $\leq 0.080$ ; GFI, TLI and CFI value  $\geq 0.90$  indicates that the model fit is acceptable. CMIN/DF (2.148), CFI (0.919), and RMSEA (0.069) are the test result of the study. The

achievement of the threshold is suggested with the results being in the acceptable range, it implicates that the model is well converged and the SEM model being in an acceptable level fitting to the data and data structure that is collected and gathered in Malaysian setting. The investigation of the construct exhibits the direct effects amongst the constructs as can be seen in the parameter estimates of the structural model. Significant relationships among the latent constructs are shown based on the significant coefficients from the output revealed.



According to Table 5,  $R = 0.732$ , it is a scale for the dependent variable which is Online Shopping Behaviour,  $R^2$  is  $0.537 > 0.5$ , the relationship between variables is significant. From the ANOVA results, the regression sum of squares value is 165.019 and the total sum of squares value is 307.583, which means that the regression model accounts for  $165.019 / 307.583$  (about 54%) of all variations in the dataset is explained. To answer whether this regression

model is or is not useless, and the hypotheses test will be rejected or not, on the equation calculation by using mean square,  $F_{5,239} = 33.004 / 0.597 = 55.283$ , which not allow to reject the hypotheses at a value greater than the 5% level of significance. In addition, the residual sum of squares value is 142.564, normally, the smaller the error, the better the regression model interprets the changes in the dataset, so the researcher usually want to minimize this error.

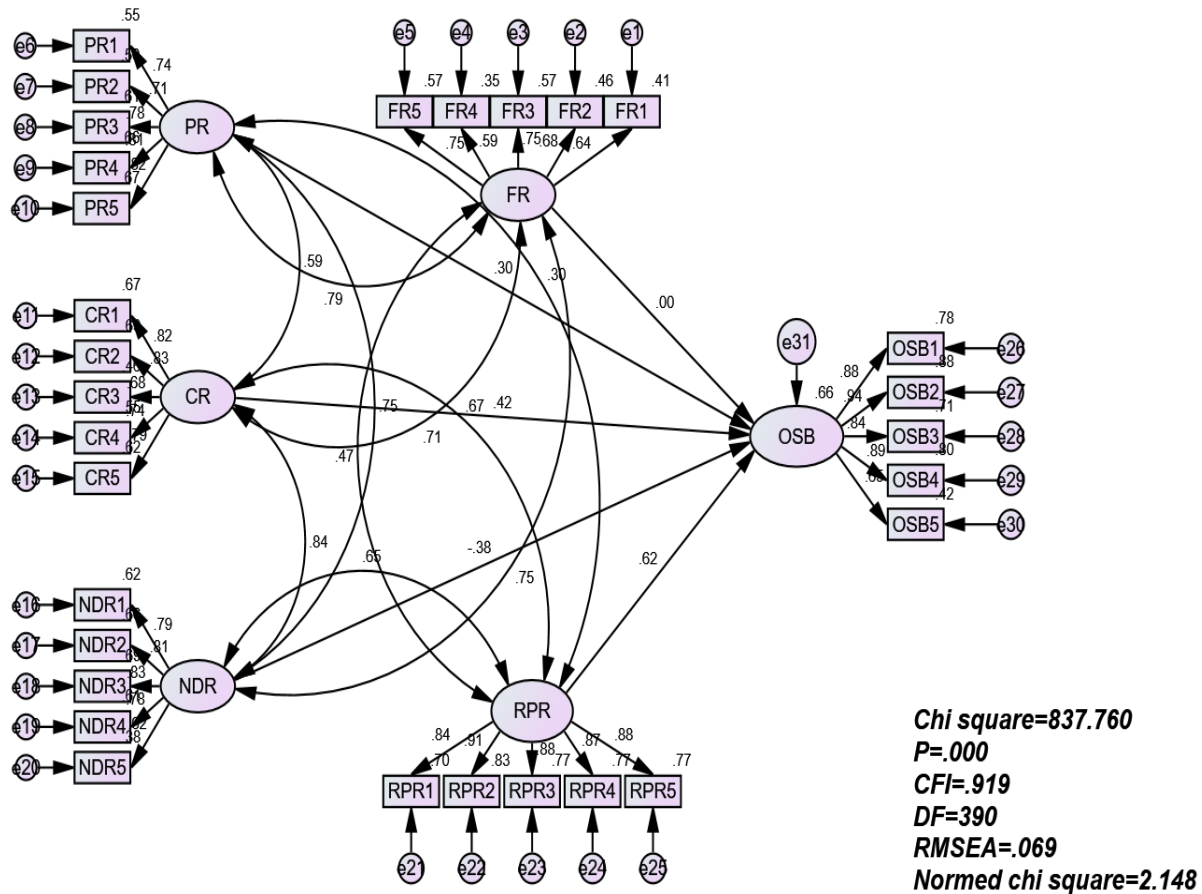


Figure 3: Structural Equation Modelling

Table 5: Regression Statistics Table

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.732 <sup>a</sup>	0.537	0.527	0.7723	1.927
a. Predictors: (Constant), Return Policy Risk, Product Risk, Convenience Risk, Financial Risk, Non-Delivery Risk					
b. Dependent Variable: Online Shopping Behavior					

## 4.7. Hypotheses

The hypotheses testing result for this research as shown in Table 6 is measured by Estimate, Standard Errors (S.E.), Critical Ratios (C.R.) and P-Value (P), where acceptance or rejection of hypotheses is determined by the P-value (Filho et al., 2013).

From the result shown in Table 6, Financial Risk (FR) variable is insignificant and negatively affecting the online shopping behavior with a p-value greater than 0.05 at 0.992 and estimate value at -0.001. Whilst Non-Delivery Risk (NDR), is the variable that highly significant negatively

affecting online shopping behavior, on its p-value 0.015 is lesser than threshold value  $< 0.05$ , and estimate value at -0.487. The P-Value is defined as an uninterrupted measure of proof to show the implication of the assumption and with a probability threshold of  $< 0.05$ . Meanwhile, p-value that  $< 0.01$  represents highly significance. The remaining variables as per composed in conceptual framework, such as Product Risk (PR), Convenience Risk (CR) and Return Policy Risk (RPR), are found highly significant and positively affecting the online shopping behavior with the p-value lesser or near to 0.01.

**Table 6:** Hypotheses Testing Result

Hypotheses				Estimate	S.E.	C.R.	P	Decision
H1	Online Shopping Behaviour (OSB)	<---	Financial Risk (FR)	-0.001	0.132	-0.01	0.992	Rejected
H2	Online Shopping Behaviour (OSB)	<---	Product Risk (PR)	0.291	0.116	2.502	0.012	Accepted
H3	Online Shopping Behaviour (OSB)	<---	Convenience Risk (CR)	0.429	0.124	3.46	***	Accepted
H4	Online Shopping Behaviour (OSB)	<---	Non Delivery Risk (NDR)	-0.487	0.201	-2.422	0.015	Accepted
H5	Online Shopping Behaviour (OSB)	<---	Return Policy Risk (RPR)	0.646	0.084	7.651	***	Accepted

## 5. Conclusion

The study intended to measure impact on five types of perceived risk factors namely financial risk, product risk, convenience risk, non-delivery risk and return policy risk on consumer behavior of Malaysian online consumers. It can be thus concluded that the objectives of the study have been achieved by testing the impact of selected five types of risk on online shopping behavior. Financial risk is found to have a negative but insignificant impact on online shopping behaviors. This shows that although consumers prefer to avoid possible financial risk, this factor is not significant in Malaysian online shopping context. This research confirms the positive significant impact of product risk, convenience risk, and return policy risk on consumer behavior of online shoppers. On another note, it was identified that non-delivery risk has a negative impact on online consumer behavior. The outcome of the study recommends online businesses to minimize return policy risk by laying down clear policy and procedures, furthermore, to adhere to such stated policy standards. Product risk can be reduced by displaying clear product information. The results also warranted the need for providing convenience while shopping online. The study has some limitations in terms of representation of sample and sample composition because of data collection is carried out at limited geographical locations in Malaysia. Furthermore, the study has not considered online shopping in specific context e.g. apparels, etc. In the future, this research outcome can be a contribution to scale development studies in the context of

online shopping risks perception. Researchers can also explore various perceived risk factors when it comes to particular industries such as travel or electronic retail thus uncovering various risk dimensions.

## References

- Abrar, K., Naveed, M., & Ramay, M. I. (2017). Impact of perceived risk on online impulse buying tendency: An empirical study in the consumer market of Pakistan. *Journal of Accounting & Marketing*, 6(3), 246. doi: 10.4172/2168-9601.1000246
- Adnan, H. (2014). An analysis of the factors affecting online purchasing behavior of Pakistani consumers. *International Journal of Marketing Studies*, 6(5), 133-148. <http://dx.doi.org/10.5539/ijms.v6n5p133>
- Akin, E., & Yeniçeri, T. (2013). Determining risk perception differences between online shoppers and non-shoppers in Turkey. *International Journal of Social Sciences*, 11(3), 135-143.
- Alreck, P., & Settle, R. B. (2002). Gender effects on Internet, catalogue and store shopping, *Journal of Database Marketing & Customer Strategy Management*, 9(2), 150-162. <https://doi.org/10.1057/palgrave.jdm.3240071>
- Barnes, S. J., Bauer, H. H., Neumann, M. M., & Huber, F. (2007). Segmenting cyberspace: A customer typology for the internet. *European Journal of Marketing*, 41(1/2), 71-93.

- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107(2), 238-246.
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588-606.
- Chang, H. H., & Chen, S. W. (2008). The impact of online store environment cues on purchase intention: Trust and perceived risk as a mediator. *Online Information Review*, 32(6), 818-841. <https://doi.org/10.1108/14684520810923953>
- Chatterjee, S., & Hadi, A. S. (2015). *Regression analysis by example*. New York, NY: John Wiley & Sons.
- Chen, L. (2009). *Online consumer behavior: An empirical study based on theory of planned behavior*. (Doctorial Dissertation, The University of Nebraska-Lincoln).
- Claudia, I. (2012). Perceived risk when buying online: Evidence from a semi-structured interview. *Studia Universitatis Vasile Goldiş, Arad-Seria Ştiinţe Economice*, 22(1+2), 63-73.
- Crespo, A. H., Bosque, I. R., & Salmones Sánchez, M. M. G. (2009). The influence of perceived risk on Internet shopping behavior: A multidimensional perspective. *Journal of Risk Research*, 12(2), 259-277. DOI: 10.1080/13669870802497744
- Cunningham, L. F., Gerlach, J. H., Harper, M. D., & Young, C. E. (2005). Perceived risk and the consumer buying process: Internet airline reservations. *International Journal of Service Industry Management*, 16(4), 357-372.
- Dalgaard, P. (2008). *Introductory statistics with R*. New York, NY: Springer.
- Dan, Y., & Kim, D. J., (2007). Customer self-service systems: The effects of perceived Web quality with service contents on enjoyment, anxiety, and e-trust. *Decision Support Systems*, 43(3), 746-760.
- Dastane, O., Jalal, B. M., Ifwan, M., & Selvaraj, K. (2018). Assessment of extended ES-Qual Model in an M-commerce setting. *International Journal of Management, Accounting and Economics*, 5(12), 923-954.
- Donni, R., Dastane, O., Haba, H. F., & Selvaraj, K. (2018). Consumer perception factors for fashion M-commerce and its impact on loyalty among working adults. *Business and Economic Research*, 8(2), 168-192.
- Field, A. P. (2000). *Discovering statistics using SPSS for windows*. Thousand Oaks, CA: Sage Publications.
- Filho, D. B. F., Paranhos, R., Rocha, E. C., Batista, M., Silva Jr., J. A., Santos, M. L. W. D., & Marino, J. G. (2013). When is statistical significance not significant? *Brazilian Political Science Review*, 7(1), 31-55. Retrieved from <http://www.scielo.br/pdf/bpsr/v7n1/02.pdf>
- Forsythe, S. M., & Shi, B. (2003). Consumer patronage and risk perceptions in Internet shopping. *Journal of Business Research*, 56(11), 867-875.
- Forsythe, S., Liu, C., Shannon, D., & Gardner, L. C. (2006). Development of a scale to measure the perceived benefits and risks of online shopping. *Journal of Interactive Marketing*, 20(2), 55-75.
- Foscht, T., Ernstreiter, K., Maloles III, C., Sinha, I., & Swoboda, B. (2013). Retaining or returning? Some insights for a better understanding of return behaviour. *International Journal of Retail and Distribution Management*, 41(2), 113-134.
- Glen, S. (2014). *Cronbach's Alpha: Simple definition, use and interpretation*. Retrieved February 18, 2019, from <https://www.statisticshowto.datasciencecentral.com/cronbachs-alpha-spss/>
- Goi, C. (2016). M-commerce: Perception of consumers in Malaysia. *Journal of Internet Banking and Commerce*, 21(Special Issue 5), 1-11.
- Haider, A., & Nasir, N. (2016). Factors affecting online shopping behavior of consumers in Lahore, Pakistan. *Journal of Management Engineering and Information Technology*, 3(6), 9-14.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). Examining your data. In *Multivariate data analysis with readings* (pp.32-75). Indianapolis, IN: Macmillan Publishing Co., Inc.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Pearson Educational International.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (Vol. 6). Upper Saddle River, NJ: Pearson Prentice Hall.
- Hamid, M. R., Sami, W., & Sidek, M. M. (2017, September). Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. In *Journal of Physics: Conference Series* (Vol. 890, No. 1, p. 012163). Bristol, United Kingdom: IOP Publishing.
- Hassan, A. M., Kunz, M. B., Pearson, A. W., & Mohamed, F. A. (2006). Conceptualization and measurement of perceived risk in online shopping. *Marketing Management Journal*, 16(1), 138-147.
- Hooper D., Coughlan, J., & Mullen, M., (2008). Structural Equation Modeling: Guidelines for Determining Model Fit. *Electronic Journal of Business Research Methods*, 6, 53-60.
- Huang, W. Y., Schrank, H., & Dubinsky, A. J. (2006). Effect of brand name on consumers' risk perceptions of online shopping. *Journal of Consumer Behaviour*, 4(1), 40-50. <https://doi.org/10.1002/cb.156>
- Jahankhani, H. (2009). The behaviour and perceptions of on-line consumers: Risk, risk perception and trust. *International Journal of Information Science and Management*, 7(1), 79-90.
- Janda, S., Trocchia, P. J., & Gwinner, K. P. (2002). Consumer perceptions of Internet retail service quality. *International Journal of Service Industry Management*, 13(5), 412-431.
- Kaiser, H. F. (1970). A second generation little jiffy. *Psychometrika*, 35(4), 401-415.

- Kim, I. (2010). Consumers' rankings of risk reduction strategies in e-shopping. *International Journal of Business Research*, 10(3), 143-148.
- Kim, J., Lee, J., Han, K., & Lee, M. (2002). Businesses as buildings: Metrics for the architectural quality of Internet businesses. *Information Systems Research*, 13(3), 239-254.
- Kline, R. B. (2011). *Principles and practice of Structural Equation Modeling*. New York, NY: Guilford Press.
- Lee, K. S., & Tan, S. J. (2003). E-retailing versus physical retailing: A theoretical model and empirical test of consumer choice. *Journal of Business Research*, 56(11), 877-885.
- Lee, P. M. (2002). Behavioral model of online purchasers in e-commerce environment. *Electronic Commerce Research*, 2(1-2), 75-85.
- Liang, T. P., & Lai, H. J. (2000, January). Electronic store design and consumer choice: An empirical study. In *Proceedings of the 33rd Annual Hawaii International Conference on System Sciences* (pp. 10).
- Masoud, E. Y. (2013). The effect of perceived risk on online shopping in Jordan. *European Journal of Business and Management*, 5(6), 76-87.
- Mwencha, P. M., Muathe, S. M., & Thuo, J. K., (2014). Effects of perceived attributes, perceived risk and perceived value on usage of online retailing services. *Journal of Management Research*, 6(2), 140-161.
- Naiyi, Y. E. (2004). Dimensions of consumer's perceived risk in online shopping. *Journal of Electronic Science and Technology*, 2(3), 177-182.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). Servqual: A multiple-item scale for measuring consumer perception of service quality. *Journal of retailing*, 64(1), 12-40.
- Saprikis, V., Chouliara, A., & Vlachopoulou, M. (2010). Perceptions towards online shopping: Analyzing the Greek university students' attitude. *Communications of the IBIMA*, 2010 (2010), Article ID 854516 [Online Journal]. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.589.747&rep=rep1&type=pdf>
- Satar, M., Safie, N., Dastane, O., & Maarif, M. Y. (2019). Customer value proposition for E-commerce: A case study approach. *International Journal of Advanced Computer Science and Applications*, 10(2), 454-458. <http://dx.doi.org/10.14569/IJACSA.2019.0100259>
- Sinha, J., & Kim, J. (2012). Factors affecting Indian consumers' online buying behavior. *Innovative Marketing*, 8(2). Retrieved from [https://businessperspectives.org/images/pdf/applications/publishing/templates/article/assets/4625/im\\_en\\_2012\\_02\\_Sinha.pdf](https://businessperspectives.org/images/pdf/applications/publishing/templates/article/assets/4625/im_en_2012_02_Sinha.pdf)
- Statista. (2019). *Contribution of e-commerce to the gross domestic product (GDP) of Malaysia from 2010 to 2017* (in billion Malaysian ringgit). Retrieved February 15, 2019, from <https://www.statista.com/statistics/956908/e-commerce-contribution-to-gdp-malaysia/>
- Teo, T. S. (2002). Attitudes toward online shopping and the Internet. *Behaviour & Information Technology*, 21(4), 259-271.
- Teo, T. S., Srivastava, S. C., & Jiang, L. (2008). Trust and electronic government success: An empirical study. *Journal of management information systems*, 25(3), 99-132.
- TheStarOnline. (2018). Mobile cellular penetration reaches 131.8%. Retrieved February 28, 2019, from <https://www.thestar.com.my/business/business-news/2018/02/14/mobile-cellular-penetration-reaches-1318/>
- Tsiakis, T. (2012). Consumers' issues and concerns of perceived risk of information security in online framework. The marketing strategies. *Procedia-Social and Behavioral Sciences*, 62, 1265-1270.
- Wong, S. W., Dastane, O., Safie, N., & Maarif, Y. (2019). What WeChat can learn from WhatsApp? Customer value proposition development for mobile social networking Apps: A case study approach. *Journal of Theoretical and Applied Information Technology*, 97(4), 1091-1117.
- Zeithaml, V., & Bitner, M. (2003). *Services marketing: Integrating customer focus across the firm* (3rd ed.). New York, NY: McGraw-Hill.
- Zhang, L., Tan, W., Xu, Y., & Tan, G., (2012). Dimensions of consumers perceived risk and their influences on online consumers purchasing behaviour. *Communications in Information Science and Management Engineering*, 2(7), 8-14.
- Zheng, L., Favier, M., Huang, P., & Coat, F. (2012). Chinese consumer perceived risk and risk relievers in E-shopping for clothing. *Journal of Electronic Commerce Research*, 13(3), 255-274.